PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN

BENGAL

FOR

1876-77,

By W. SCHLICH, Esq., Ph. D.,
CONSERVATOR OF FORESTS:

WITH A REVIEW BY THE LIEUTENANT-GOVERNOR

AND

ORDERS BY THE GOVERNMENT OF INDIA.

1878.

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No. 48, dated Darjeeling, the 20th July 1876.

From—Dr. W. Schlich, Conservator of Forests, Bengal,

To—The Secretary to the Government of Bengal, Financial Department.

I have the honor to submit the annual administration report of the Forest Department for the year 1875-76, together with an appendix and a map giving a detailed account of the reserved State forests in the Palamow Forest Division. The map exhibiting the forest reserves in the Palamow Division, and the manner in which they are grouped in ranges and beats, seem to me very instructive, and I should be glad if it could be printed and appended to the report.

2. I beg that 25 copies of the report may be forwarded to me as soon as it has been printed, for distribution to the officers of the department.

PROGRESS REPORT

OF

FOREST ADMINISTRATION IN BENGAL

For the Year 1875-76.

By W. SCHLICH, Ph.D.,

Conservator of Forests, Bengal.

INTRODUCTORY.

The organization of the Forest Department in Bengal has not yet been completed. In the annual report for 1874-75 it has been shown that the area of reserved forests rose during that year from 120 to 1,467 square miles. During the year under review (1875-76) the area has been further augmented, so that it stood at 2,585 square miles on the 31st March 1876. Since then further areas have been added, and others are under consideration.

2. In the same way as the centre of gravity of the annual report of this department had last year been shifted from Section I (Inspection of Forests) to Section II (Formation of Reserves), so has now a beginning been made to shift it to Sections III and V (Protection, Improvement and Working of the Forests).

3. During the year under review our chief efforts, besides the formation of additional reserves, have been directed towards the demarcation of the Government forest estates, their protection against injury, their working according to well-considered working plans, creeper cutting, and the construction of roads and rest-houses, so that after another year or two we may approach a fairly normal state of organization and working.

SECTION I.—INSPECTION OF FORESTS.

DARJEELING DIVISION.

4. During the year under review the fir forests in this district have been examined by Mr. Gamble, from whose report the following data have been obtained.

The forests are situated on the Singalila ridge, which forms the western boundary of the Darjeeling district, and they cover the top and eastern slopes of that ridge from an elevation of about 12,000 feet down to about 8,000 feet, occupying an area of from 25 to 30 square miles. The upper half of the area is stocked chiefly with *Abies Webbiana*, the lower half with *Abies Dumosa*, and over the whole is found here and their *Juniperus recurva*. The former two grow into large trees, whereas the latter rarely reaches a height of more than 30 feet. Neither the wood of the *Abies Webbiana* nor that of *Abies Dumosa* is valuable when compared with other woods growing in the Darjeeling district,

and they both are inferior to the wood of *Pinus longifolia*, growing at low elevations. The local consumption is very small, and it would never pay to export the timber to Darjeeling or places further removed, owing to the inferiority of the timber and the inaccessibility of the locality. On the other hand, it appears highly advisable that the area should be kept under forest for climatic reasons, the regulation of the supply of water, and the prevention of landslips.

5. The forests being the private property of Cheeboo Lama, the Conservator cannot, for the above reasons, propose any interference of the Forest department, but would suggest that the Deputy Commissioner of the district may exercise his influence in preventing the destruction of the forests by suggesting, and, if necessary, by insisting upon, the abolition of the barbarous practice of barking the trees, and by allowing grazing only in rotation. For the latter purpose the Conservator would suggest closing half the area against grazing for 10 years, and then the other half, opening the one closed first. With these two simple measures carried out, the Conservator is fairly convinced the forest will hold its own against any attacks that are likely to be made on it. These views have been *approved of by Government.*

6. In addition to the above, forest tracts in Shahabad and the Sonthal Pergunnahs have been inspected during the year. These have been reported on some years ago; but as the information gathered during the past year is more detailed than that recorded before, it has been entered here.

SHAHABAD.

7. In the Sasseram Sub-division of this district three blocks of jungle land situated in pergunnah Rohtas, and extending over an area of 38·3 square miles, are at the disposal of Government. They are situated on the left or western bank of the river Soane, and the forest produce derived from them can be carried by land or water into the Shahabad, Gya, Sarun, and Patna districts. These are all poor in forests, and consequently the Rohtas blocks are of great value.

8. The following data have been compiled from Mr. Johnston's report. The areas actually available are as follows:—

		Square miles.	Acres.
1.	The Rohtas plateau	9·43	6,035
2.	„ ditto slopes	10·73	6,867
3.	„ Rehull plateau	12·38	7,923
4.	„ Bunsakoh	5·76	3,686
	Total	38·30	24,511

9. *The Rohtas plateau*, situated at 1,200 to 1,400 feet above the sea. The northern half of the area may be considered wooded, whereas the southern half is almost completely denuded. But even the former is very poorly stocked at present. The predominating trees are—

Sida	*Lagerstrœmia parviflora.*
Salai	*Boswellia thurifera.*

And next to these—

Piar	*Buchanania latifolia.*
Dhauta	*Anogeissus latifolia.*
Persar (?)	*Cassia fistula.*
Sâl	*Shorea robusta.*
Asan	*Terminalia tomentosa.*
Khair	*Acacia catechu.*
Then	*Diospyros melanoxylon*—the Ebony.

Of the last 4 species only a few seedlings were observed. Bamboos are scarce; Sida, Dhauta, and Persar, are good woods; Piar is of tolerable quality; and Salai is very inferior. Some of the sida trees are of fair size, but on the whole the forest is very much reduced and badly stocked. Valuation surveys extending

over 167·81 acres, equal to 2·8 per cent. of the total area, show the following average contents per acre of the fifteen most important species:—

Under	18″ girth	=	23·95	trees.
	18″ to 3′	„ =	2·30	„
	3′ to 4′ 6″	„ =	0·52	„
	4′ 6″ to 6′	„ =	0·29	„
Above	6′	„ =	0·13	„
	Total ...		27·19	trees per acre.

Of these, 20·76 are sida, only 0·11 sâl (all seedlings), and 0·14 ebony.

Of minor produce the savi grass is much prised for ropes, and exported from the plateau.

There are two villages on the plateau—Gajimaidan, containing about 25 houses, and Sukpura, with 17 houses—the inhabitants of which cultivate in the denuded area.

10. *The Rohtas slopes.*—With the exception of the upper precipitous parts, the slopes are tolerably well wooded, though unequally. Bamboos are plentiful, and exported in large quantities. Valuation surveys extending over an area of 203·4 acres, equal to 3 per cent. of the total area, show the following average contents per acre of the fifteen more important species:—

Under	18″ girth	=	49·65	trees.
	18″ to 3′	„ =	3·08	„
	3′ to 4′ 6″	„ =	1·08	„
	4′ 6″ to 6′	„ =	0·51	„
Above	6′	„ =	0·14	„
	Total ...		54·46	„

Of these, 13·74 are persar, 12·65 khair, 8·71 sida, 8·41 dhauta, 7·66 then (ebony), and 1·14 sâl.

It will be observed that the slopes contain about twice as many trees per acre as the plateau, and that there is a good proportion of khair and ebony, both valuable woods. Of sâl there is very little, though more than on the plateau. Mature timber is very scarce. Neither villages nor cultivated lands are found on the slopes.

11. *The Rehull plateau.*—About three-fourths of the plateau are well wooded, and the remaining fourth is land which has been under cultivation. Surveys extending over 123·05 acres, equal to 1·6 per cent. of the total area, show the following results, comprising fifteen species:—

Under	18″ girth	=	75·12	trees.
	18″ to 3′	„ =	7·37	„
	3′ to 4′ 6″	„ =	2·05	„
	4′ 6″ to 6′	„ =	0·64	„
Above	6′	„ =	0·23	„
	Total ...		85·41	„

Of these, 48·60 are sâl, 10·23 asan, 9·88 then (ebony), 8·29 sida, 5·86 dhauta, and 2·22 mahua (*Bassia latifolia*).

This forest may therefore be called a sâl forest with a fair admixture of ebony and other valuable woods.

Although the forest does not contain much mature timber at present, numbers of large stumps prove how well the trees will grow if allowed to do so.

12. *The Bunsakoh.*—Surveys extending over 61·065 acres, equal to 1·6 per cent. of the total area, show the following numbers of trees of the fifteen most important species per acre:—

Under	18″	girth	= 69·16	trees.
	18″ to 3′	„	= 6·72	„
	3′ to 4′ 6″	„	= 2·15	„
	4′ 6″ to 6′	„	= 0·82	„
Above	6′	„	= 0·41	„
	Total	...	79·26	„

Of these, 23·08 are then (ebony), 15·62 khair, 13·31 dhauta, 11·06 asan, 5·99 persar, 5·80 sida, 0·05 sâl.

The block is described as an ebony forest, in which that tree grows to fine dimensions, the boles being straight and long. It is fairly stocked all over, and there are neither villages nor cultivation in it.

13. To sum up, there are the following areas:—

Names of Blocks.				Under forest (estimated). Acres.	Cultivated or bare land (estimated). Acres.
Rohtas	block (plateau and slopes) about		...	9,902	3,000
Rehull	„ ...	...	...	5,923	2,000
Bunsakoh	„ ...	...	...	3,686	.....
		Total	...	19,511	5,000

The forest on the Rohtas plateau is inferior; that on the slopes is tolerably good. They both are classed as mixed forest containing very little sâl or ebony, but a good deal of bamboos and a fair amount of sida, persar, and khair. The Rehull block is covered with sâl and a fair amount of ebony. The Bunsakoh block may be styled a mixed forest with ebony as the prevailing tree.

None of the blocks contain much large timber now, but there is a fair amount of young growth, and sufficient evidence to show that large timber will be produced if the forests are protected against reckless cutting.

14. Orders have been passed, after the close of the year under review, that the areas under forest are to be gazetted as Government reserved forests.

SONTHAL PERGUNNAHS.

15. For many years past the question what should be done in the way of forest conservancy in the Sonthal Pergunnahs has been discussed, and it has not been finally answered as yet.* However, so much seems settled, that only in a small portion, situated between Doomka and Mooraroe on the Loop line of the East Indian Railway, real forest conservancy can be attempted, if at all. Mr. Johnston visited that locality during the past year, and from his report the Conservator gathers the following information.

16. The tract of country examined by Mr. Johnston is divided by the Bansloe river, running west and east and passing Kuskira, a place 21 miles south-west of Mooraroe. There is a marked difference between the tract north of the Bansloe and that south of it. The former is inhabited by Doomka Paharias, who have cultivated all available ground, the consequence being that only small patches of forest scattered over the country remain, which are too small in area to be taken up as Government reserves.

17. The tract situated to the south of the Bansloe is less densely populated, and contains still a large amount of forest, chiefly composed of sâl. Here a block of 43 square miles, composed of undulating ground, has been described as worth reserving. It is estimated that out of the above-mentioned area 35 square miles are under forest, whereas 8 square miles are cultivated by the people of ninety-one small villages. By altering the boundaries it

* Since the above was written an area of about 40 square miles has been gazetted as a reserve.

would be possible to reduce the number of villages to forty-eight, whereby the area would be reduced to 40 square miles.

The forest consists chiefly of sâl of very fine and vigorous growth, though poor in mature timber. In fact there are hardly any trees at all above three feet in girth; but at the same time there is no doubt that, with proper protection, the forests would become very valuable, owing to the fine growth of sâl in most parts, and the position of the tract in the very heart of Bengal and within 25 miles of the East Indian Railway. Of other trees the following are most conspicuous:—

Asan (*Terminalia tomentosa*).	Kusum (*Scheichera trijuga*).
Dhauta (*Anogeissus latifolia*).	Mahua (*Bassia latifolia*).
Then (ebony) (*Diospyros melanoxylon*).	

The villages are scattered over the block, but the larger number is found in the northern part. If it should be found practicable to provide for the people elsewhere, or to settle them on a portion of the area, it would be highly advisable to reserve the rest of the area, comprising about 30 square miles. The necessary inquiries on this point are now being made by the Commissioner of the division, and it is to be hoped that this small area at least out of the whole district may be saved from destruction.

UNEXPLORED TRACTS

18. The tracts remaining unexplored are chiefly the following:—
   (1) The Saranda forests in Chota Nagpore.
   (2) Several other blocks in different parts of the Chota Nagpore Commissionership.
   (3) The Berhampore sâl forests in the Rajshahye Commissionership.
   (4) Several blocks in the Bogra district.
   (5) The Mudhopore jungle in Mymensingh.
   (6) The sea-shore forests in Cuttack.
   (7) It is possible that some tracts may be found in Chumparun.

Most of these forests, it is hoped, will be inspected during the year 1876-77.

SECTION II.—FORMATION OF RESERVES.

19. In the same way as in 1874-75, so again has great progress been made in 1875-76 in the selection and formation of reserved State forests. The actual progress will be seen from the subjoined table:—

Divisions.	In square miles.			Remarks.
	Area at the beginning of the year 1875-76.	Area added during the year.	Total at the end of the year 1875-76.	
Darjeeling	106	.....	106	
Julpigoree	129	30	159	
Palamow	.....	151	151	
Sunderbuns	885	314	1,199	
Chittagong	347	223	570	
Singhbhoom	.....	400	400	Rough estimate.
Total ...	1,467	1,118	2,585	

Thus it will be observed that the increase amounts to 1,118 square miles during the year under review, bringing the increase during the last two years up to 2,465 square miles. In addition to the above the following areas are now under consideration:—

Darjeeling Division	50	square miles.
Julpigoree „	231	„
Shahabad „	38	„
Sonthal Pergunnahs	30	„
Hazareebagh	60	„
Total ...	409	„

the greater portion of which, if not the whole, will be gazetted during the year 1876-77.

20. The natural result at this rapid increase is that the greater part of the time of the officers has been devoted to demarcation works, whereas the detailed examination of the reserves had to be temporarily suspended.

21. With regard to vegetation, the reserved areas may be classified in the following manner :—

Sâl reserves, including limited areas of sissu, and intersected by savannah tracts	766	square miles.
Darjeeling hill forest	50	„
Sunder forest	1,199	„
Chittagong mixed forest	570	„
Total ...	2,585	„

It should be specially noted that the area of sâl reserves has been largely extended during the year, and it is expected that it will finally be brought up to some 1,200 square miles, if not to more.

DARJEELING DIVISION.

22. No new reserves have been gazetted during the year. In the Dumsong Sub-division 50 square miles are under discussion.

JULPIGOREE DIVISION.

23. At the beginning of the year the following areas had been reserved :—

The Dainah sissu reserve	2	square miles.
„ Muraghat sâl „	17	„
„ Buxa plain „	110	„
Total ...	129	„
Added during the year the Apalchand reserve ...	30	„
Grand total at the end of 1875-76 ...	159	„

24. *The Apalchand Reserve.*—Gazetted by a notification dated 7th September 1875, published at page 1125 of the *Calcutta Gazette* of the 8th September 1875.

The reserve is situated on the left or eastern bank of the river Teesta, about 15 miles above the town of Julpigoree.

(1) *Area* (estimated) 19,140 acres, equal 30 square miles.

(2) *Boundaries.*—Commencing from the junction of the Gheesh and Teesta rivers, up the Gheesh and its feeder, the Lubongodheet Jhora, to the southern boundary of the Udlabary taluk, along that boundary to the Chel river; down the Chel to the northern boundary of the late Doorga Mechee's land, known as Khateagaon Rajadanga; then a demarcated line along its western boundary for about 1½ mile; then westward to the northern boundary of Binnah Ram Jemadar's land, known as Khelabari Rajadanga, to the Phuljhora nuddy; then across that nuddy, along the southern boundary of the sâl forest to the land of Mahar Ali and others, known as Kala Dooar; skirting these to the high land north of Katambari village; along the edge of that high land to the Apalchand river, excluding the land known as Shamsar Pokri; then down the Apalchand river to its junction with the Teesta; then up the Teesta to the southern boundary of the Gazliduba tea estate, round this estate, again up the Teesta to the junction with the Gheesh river.

Estimated area of the tract 19,140 acres, equal to 30 square miles.

(3) *Topographical description.*—The northern, central, and eastern parts of the reserve are situated on slightly elevated, though almost level, ground;

whereas the western part, near the Teesta, consists of somewhat lower ground. The area is drained on the west by the Gheesh and Teesta rivers, in the centre by the Apalchand, and on the north-east by the Chel river. The Gheesh and Apalchand are feeders of the Teesta, and they both join the latter above Julpigoree. The Chel joins the Dharla, which also joins the Teesta above Julpigoree.

The old Julpigoree Daling road passes through the eastern part of the reserve, and a road from Chengmari to Gazliduba through the western part.

The rainfall in the reserve may be estimated to amount to about 100 inches per year.

(4) *Soil.*—This changes from a good sandy loam in the east and in the centre to sandy river deposit near the bank of the Teesta.

(5) *Description of forest.*—The elevated part in the east and centre is stocked with sâl forest intersected by savannah tracts, and the western or lower part contains sissu and khair forest, with a good amount of safet sirris (*Albizzia elata*), and the other usual companions of sissu and khair. The sâl is accompanied, as usual, by *Dillenia pentagyna*, *Careya arborea*, *Lagerstrœmia parviflora*, and others. Many parts of the centre and east are well stocked, and the sâl exhibits very fine growth, though the proportion of trees above four feet six inches in girth is unfavourable.

(6) *Timber Depôts*, (7) *Timber markets*, (8) *Lines of Export.*—The timber will be transported to the Julpigoree depôt, where it will find a ready market. In fact there is a demand for more timber at Julpigoree than can be satisfied at present. Besides, tea plantations are being opened out around the reserve, which will require forest produce, and any surplus material in the future can easily be floated down the Teesta towards the Brahmaputra. On the whole, therefore, this reserve is, owing to its favourable position, of very great value.

(9) *Villages within the reserve.*—There are five jotes in the reserve, comprising an area of about 1,200 acres. A new settlement is now in progress in the Dooars, and endeavours are being made to accomplish exchanges of land, so that all the jotes may be excluded by the boundary to be demarcated. The results will be recorded next year.

(10) *Rights of surrounding population.*—None.

(11) *A map* of the boundaries, on a scale of two inches to the mile, has been prepared.

(12) *Working plan.*—The reserve has not yet been examined in detail, which, it is hoped, will be done during the year 1876-77; and in the meantime 400 sâl trees per year are being cut and transported to the Julpigoree depôt for the supply of the Department of Public Works and of private parties.

25. Proposals for the reservation of a further area of 231 square miles are now pending, the boundaries of the several blocks having been selected by the Conservator of Forests during the past cold season. In a small portion of the division, namely the area between the Rehtee and Torsa rivers, additional blocks will have to be selected during the year 1876-77.

PALAMOW DIVISION.

26. By a notification dated 10th August 1875, published at page 1032 of the *Calcutta Gazette* of the 11th August 1875, thirty-seven blocks of land have been declared Government reserved forests. A detailed statement, showing areas, contents of forests, &c., will be found in Appendix A, prepared by Mr. Johnston, from which the following data have been extracted.

(1) *Area.*—Equal 96,522 acres, equal to 151 square miles.

(2) *Boundaries.*—See Appendix A.

(3) *Topographical description.*—The forests are situated on undulating ground drained by the Kool, its feeder the Aurunga, and numerous small rivulets

which join either the Kool or the Aurunga. The highest elevation is reached near Barasand, amounting to about 2,000 feet above the sea.

(4) *Soil.*—The underlying rock is gneiss, which appears on the surface on all the upper ranges and steep slopes. On the undulating ground the gneiss is covered by laterite formations, by ferruginous clay and loam.

(5) *Description of forests.*—There is lower mixed forest, sâl forest, and upper mixed forest.

The most characteristic trees of the lower mixed forest are—

Khair (*Acacia catechu*).	Asan (*Terminalia tomentosa*).
Paras (*Butea frondosa*).	Ber (*Zizyphus jujuba*).

In the sâl forest the portion of sâl is so great that all other species become comparatively unimportant. Of the latter the following are chiefly characteristic:—

Piar (*Buchanania latifolia*).	Belawa (*Semecarpus anacardium*).

The upper mixed forest contains the greatest number of species, of which the following are most characteristic:—

Salai (*Boswellia thurifera*).	Guler (*Ficus leucocarpa*).
Dhauta (*Anogeissus latifolia*).	Ginyan (*Odina Wodier*).
Gamhar (*Gmelina arborea*).	Kusum (*Schleichera trijuga*).
Then (*Diospyros melanoxylon*).	Galgal (*Cochlospermum gossypium*).
Kien (*Diospyros tomentosa*).	Bans (bamboo) (*Bambusa stricta*).
Garohan (*Soymida febrifuga*).	

The distribution of the forests may be described in the following manner. The lower mixed forest occupies the lower portion of the area up to an elevation of about 1,000 feet. The upper mixed forest appears always where rocks appear in large masses on the surface—that is to say, on the upper part of the ranges and on steep slopes. The sâl forest appears, generally speaking, between the two,—that is to say, it occupies the undulating ground down to where the lower mixed forest begins.

Bamboos are found chiefly in the lower mixed forest and in the upper mixed forest.

Of the thirty-seven reserved blocks, Mr. Johnston classifies blocks Nos. 24, 26, 36, and 37 as lower mixed forest, and the remaining thirty-three blocks as sâl forest. The areas would therefore stand as follows:—

	Acres.
Lower mixed forest	4,083
Sâl forest	92,439
Total ...	96,522

There is no doubt, however, that many of the sâl blocks contain patches of upper mixed forest. The lower mixed forests are specially valuable on account of the bamboos which they contain.

Almost all the forests have been greatly reduced in condition by reckless cutting for generations past, and it is only here and there that a tree of large dimensions is found, showing what the sâl will grow to if not cut down at an early age.

(6) *Timber depôts*, (7) *Timber markets*, (8) *Lines of export.*—The Koel, after draining the reserves, proceeds past Daltongunge to the Soane river, which in its turn falls into the Ganges not far from Arrah. Hence material derived from the reserves, besides satisfying local demands, can be transported to the Patna Commissionership, where all forest produce finds a ready sale.

The Koel can be used for floating from its junction with the Aurunga downwards, a point nine miles above Daltongunge. There is an obstruction near a place called Sigsigi, which it is believed could easily be removed. Above its junction with the Aurunga the Koel is obstructed by rocks and boulders, and so is the Aurunga. From the junction of the Koel and Aurunga to the nearest reserve is a distance of five miles, and to the furthest reserve 40 miles in a straight line.

(9) *Villages in the reserves.*—On reference to Appendix A, it will be observed that a number of villages are scattered over the reserves. With the sanction of Government, an attempt will be made to settle the people outside the reserves, the results of which will be recorded next year.

(10) *Rights of surrounding population.*—None.

(11) *A map* on a scale of 2 inches to the mile has been prepared.

(12) *Working plan.*—The following table shows the average contents per acre of the nineteen most important kinds of trees of all the reserves as calculated from the valuation surveys made by Mr. Johnston. (For details, *see* Appendix A.)

Names of Trees.	Contents per acre. Between 0 & 1	1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	10 & 11	11 & 12	Total.
	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	Cbts.	
Asan (*Terminalia tomentosa*) ...	6·91	1·05	0·30	0·136	0·05	0·03	0·0005	...	...	...	...	...	8·4765
Gambar (*Gmelina arborea*)	0·17	0·12	0·02	0·004	...	...	...	...	...	...	...	...	0·314
Garso (*Albizzia lebbek*, or *procera*) ...	0·02	0·04	0·007	0·005	0·002	0·0001	...	...	...	...	...	...	0·0741
Ginyan (*Odina Wodier*)	0·56	0·19	0·06	0·04	0·006	0·008	0·001	...	...	...	...	...	0·865
Jamun (*Eugenia jambolena*)	0·02	0·02	0·006	0·002	0·002	0·0001	0·002	...	...	...	...	...	0·0521
Jamti (*Eugenia caryophyllifolia*)	0·45	0·36	0·22	0·07	0·01	0·001	...	...	...	...	...	...	1·111
Khahua (*Terminalia glabra*)	0·003	0·002	0·001	0·001	0·003	...	...	0·0001	...	...	...	...	0·0101
Karam (*Nauclea cordifolia*)	0·22	0·11	0·07	0·05	0·02	0·001	...	...	...	...	...	...	0·471
Khair (*Acacia catechu*)	12·33	0·24	0·06	0·02	0·003	...	...	...	...	...	...	...	12·658
Kumbi (*Carapa arborea*)	0·02	0·01	0·002	0·002	0·0003	...	...	...	...	...	...	...	0·0548
Kusum (*Schleichera trijuga*)	0·31	0·16	0·09	0·05	0·03	0·001	...	...	...	...	...	...	0·641
Mahua (*Bassia latifolia*)	1·10	0·49	0·24	0·10	0·03	0·005	0·0001	0·001	...	0·0001	...	...	1·9062
Paras (*Butea frondosa*)	1·07	0·15	0·05	0·01	0·001	...	...	...	...	...	...	...	1·281
Persar (/)	0·69	0·58	0·24	0·17	0·06	0·009	0·0009	...	...	...	...	...	1·7499
Sakwa (*Shorea robusta*)	35·02	1·22	0·46	0·19	0·07	0·09	0·002	0·0003	0·001	0·001	...	...	37·0543
Sida (*Lagerstrœmia parviflora*)	4·92	0·21	0·03	0·004	..	...	...	...	...	...	...	...	5·164
Dhauta (*Anogeissus latifolia*)	10·17	1·60	0·30	0·07	0·004	...	...	...	...	...	...	...	12·144
Then (*Diospyros tomentosa*)	5·10	0·58	0·07	0·02	0·0003	...	...	...	...	...	...	...	5·7708
Sissu (*Dalbergia sissoo*)	0·20	0·04	0·005	0·006	...	...	...	...	...	...	...	...	0·251
Total ...	79·283	7·172	2·231	0·950	0·2916	0·1452	0·0065	0·0014	0·001	0·0011	...	...	90·0828

It will be observed that what the reserves require is rest, so that they may recover from past maltreatment. For a number of years to come, only what is urgently required will be cut, and in the meantime a small amount of revenue will be derived by the sale of bamboos, lac, the flower of the *Bassia latifolia*, from grazing, where it cannot be excluded from the reserves, and other minor forest produce.

SOONDERBUNS DIVISION.

27. The policy to be followed in the Sunderbuns has been explained in last year's report, and in accordance with it a block of forest situated in the Jessore district, comprising 885 square miles, had been gazetted as a reserve. By a notification dated 10th August 1875, published at page 1031 of the *Calcutta Gazette* of the 11th August 1875, a further block, situated also in the Jessore district, to the south of the original reserve, has been added, in order to have large rivers on the east and west and the sea on the south as the boundaries.

(1) *Area.*—This stands now as follows:—

Gazetted in 1874-75 ...	566,253 acres	=	885 square miles.
Ditto 1875-76 ...	201,165 „	=	314 „
Total ...	767,418		1,199 „

(2) *The boundaries* of the added block are as follows:—

North and East.—The boundary of the reserved forest, as published under the date of the 15th February 1875, in the *Calcutta Gazette* of the 17th February 1875.

West.—The Arpungassy, or Namood Sumoodur, or Barapunga river; then the Mollinchew river.

South.—The Bay of Bengal.

(3) *Topographical description, to* (11) *Map of the reserve.*—The same as recorded in paragraph 72 of the report for 1874-75.

(12) *The working plan* for the whole reserve is at the outset of a very simple nature. On the north, east, and west of the reserve a number of revenue stations have been established, at one of which any one wishing to remove forest material must apply for a pass. This he receives against payment of the fixed rates. Without such a pass nobody is allowed to cut in, and remove any forest produce from, the reserve.

The reserve has been divided into two blocks. In the part situated to the west of the Pussur river, called the *Khoolna* block, and comprising an area of about 700 square miles, no restrictions regarding the size of the trees to be cut are enforced; but in the part situated to the east of the Pussur, called the *Baghirhat* block, and comprising an area of about 500 square miles, no sunder trees of less than three feet nine inches = to 2½ cubits girth, at four feet six inches (three hâts) from the ground, are allowed to be cut, unless dry or fallen. In this way a permanent supply of sunder timber will be secured, whereas on the other hand a large area is open to firewood-cutters without any restriction as to the size of the trees.

28. The area of unleased forests in the Soonderbuns, reserved and unreserved, stands as follows:—

Districts	In square miles		
	Open forest.	Reserved forest.	Total area.
24-Pergunnahs	1,723	...	1,723
Jessore	67	1,199	1,266
Backergunge	29	.....	29
Total ...	1,819	1,199	3,018

The unleased areas in Jessore and Backergunge outside the reserve are small, but there are large leased areas which have only a sprinkling of inhabitants now, and in many cases none at all; so that there is still an enormous area available for extension of cultivation; and, besides, there are 1,723 square miles available in the adjoining 24-Pergunnahs

CHITTAGONG DIVISION.

29. In 1874-75 the following reserves were gazetted:—

The Maiyani reserve	339	square miles.
„ Kurnafuli or Sitapahar plantation reserve ...	8	„
Total ...	347	„

To these the Matamahari reserve, equal to 223 square miles, has been added during the year, thus bringing the total area up to 570 square miles. No further areas are to be reserved for the present.

30. *The Matamahari reserve*, gazetted by a notification dated 19th June 1875, published at page 728 of the *Calcutta Gazette* of the 23rd June 1875.

(1) *Area.*—142,720 acres, equal to 223 square miles.

(2) *Boundaries, East.*—The watershed between the Matamahari river on one side and the Twine Choung and Sungu rivers on the other side.

South and West.—The watershed between the Matamahari river on one side and Arakan and the area drained by the Bagkhali river on the other side.

North.—A demarcated line running from Alaikhwadong east and west to the eastern and western boundaries.

(3) *Topographical description.*—The reserve comprises the area drained by the Matamahari river above Alaikhwadong, a strip of land 32 miles long and from 2 to 10 miles broad. The eastern, southern, and western boundaries are watersheds, rising up to 2,500 feet in the highest part, and sending numerous spurs up to the banks of the Matamahari, which traverses about the centre of the valley. The area consists, therefore, of hilly and undulating ground, with very little level ground near water-courses.

(4) *Soil.*—The rock is chiefly sandstone of a soft permeable description, and the soil is generally sandy loam on the hilly and undulating ground, and often clay and sand near the banks of the water-courses.

(5) *Description of forest.*—The forest is "hill or bamboo forest" on the hilly and undulating ground, and "evergreen plain forest and savannah" on the low ground near water-courses, as described in paragraphs 48, 52, 53, and 54 of the annual report for 1874-75.

(6) *Timber depôts*, (7) *Timber markets*, (8) *Lines of export.*—The forest material is taken down the Matamahari to the Chittagong regulation district, and it can be transported by water to the area drained by the Sungu and the Matamahari rivers, and also to the country around Cox's Bazar.

(9) *Villages within the reserve.*—There are four villages in the reserve, the inhabitants of which carry on joom cultivation. Under the sanction of Government they will be provided with land elsewhere, and compensation has been paid to them. They are to leave the reserve within two years from the date of the notification in the Gazette.

(10) *Rights of surrounding population.*—None.

(11) *A map* on a scale of 4 miles to 1 inch is available.

(12) *Working plan.*—Jooming and the cutting of dug-outs are strictly prohibited. A detailed working plan cannot be prepared until the reserve has been further examined.

SINGBHOOM DIVISION.

31. In the district of Singbhoom, Chota Nagpore Commissionership, there is a Government estate called Saranda, situated between the Brahminee and Byturnee rivers, and comprising an area of about 450 square miles. This estate is known to consist chiefly of sâl forest, and owing to its out-of-the-way position it has not been much worked. According to reports there are still several hundred thousands of trees of six feet girth and upwards on the ground. By a notification dated 10th August 1875, published at page 1031 of the *Calcutta Gazette* of the 11th August 1875, this estate has been declared a Government reserved forest. The notification runs as follows:—

"The Lieutenant-Governor notifies that Saranda Pir, in the district of Singbhoom, Chota Nagpore Division, within the boundaries described hereafter, has, with the exception of the areas specially excluded below, been set aside as a reserved forest tract under the provisions of Act VII of 1865 and Part II of the forest rules of Lower Bengal of 1871, and has been placed in charge of the Conservator of Forests, Bengal:—

"*Boundaries* of Saranda Pir:—

"*North and East.*—The Karo river.

"*South.*—The political estates of Bonai and Keonjur.

"*West.*—The Koel river and political estates of Gangpore.

"Estimated area 450 square miles, equal to 288,000 acres.

"The following areas, being enclosures in the above tract, are excepted:—

"(1) A block of land estimated to comprise about 16 square miles, "situated on the east bank of the Koel, the property of Abiram "Toong.

"(2) About sixty-six villages or settlements, inhabited by 2,698 souls, "together with their cultivation, and any lands necessary to "provide for their agricultural and domestic requirements.

"These areas will be marked off by the Deputy Commissioner of the "district, who will be responsible for ensuring that a full and liberal allowance "of land is assigned to the villages or settlements according to the rule above "prescribed. He will also cause the areas of these settlements to be demarcated "during the next open season."

32. Out of the total area about 400 square miles may probably remain available for forest purposes. There is not much more known at present regarding this large reserve, except that timber can be taken from it by water to Cuttack. It is situated on a straight line drawn from Calcutta to Bombay, and if direct railway communication between those two places should be taken

in hand hereafter, the Saranda reserve would become enormously valuable. The Conservator hopes to visit Saranda during the ensuing cold season, so that a more detailed account of it will probably be recorded next year.

SECTION III.—PROTECTION AND IMPROVEMENT OF FORESTS.

ESTABLISHMENTS.

33. At the direction of Government, the Conservator submitted in April 1875 proposals for a reorganization of the superior and subordinate establishments. Regarding the former, comprising ten officers in all, no orders have been passed up to date. The proposals for subordinate establishments involved a monthly expenditure of Rs. 3,366. This amount was reduced by the Government of Bengal to Rs. 3,266 per mensem. The Government of India, on further consideration, decided not to sanction any permanent establishment until the organization of the department had been brought nearer to completion than it was at the time, but to allow in the meantime a monthly expenditure of Rs. 3,000. This sum has been distributed as follows :—

		Rs.
	Office Establishment.	
Conservator's office	... ...	367
Darjeeling Division	.. ..	105
Julpigoree „	... ...	80
Palamow „	... ...	52
Soonderbuns „	... ...	86
Chittagong „	... ...	110
	Total ...	800
	Forest Establishment.	
Darjeeling Division	... ...	436
Julpigoree „	... ...	396
Palamow „	... ...	198
Soonderbuns „	... ...	324
Chittagong „	... ...	846
	Total ...	2,200
	Grand total ...	3,000

Within these limits the Conservator has been authorized to entertain what establishment he considers necessary.

34. Since the above-mentioned proposals were submitted, the department has made great strides in advance. Large areas have been added to the reserves, for some of which no provision could be made at the time. During the next year or two further areas will be added; so that if the revenue increases as expected, a further decided increase in the superior and subordinate establishments will become necessary.

FOREST LAW.

35. No changes of any kind have taken place during the year. The special Act for Chittagong is still under consideration.

BREACH OF FOREST RULES.

36. The total number of prosecutions during the year amounts to 30, involving 73 persons. In 22 cases convictions were obtained against 41 persons, 1 case is pending, and 7 were dismissed. The details are as follows :—

37.

DARJEELING DIVISION.

Number of prosecutions ...	... ...	13, involving	15 persons
„ of convictions ..	... ..	10, „	12 „
„ of cases dismissed	... ...	3, „	3 „

The cases referred all to theft of small timber and unlawful felling of trees; the punishments consisted of short terms of imprisonment.

38.

JULPIGOREE DIVISION.

Number of prosecutions ...	...	3, involving	26 persons.
„ of convictions ...	... ...	3, „	8 „

The cases referred to illegal cutting of trees in the Buxar reserve, and the punishments consisted of small fines, or merely of the confiscation of tools.

39. SOONDERBUNS DIVISION.

Number of prosecutions .	...	...	7, involving 22 persons.
„ of convictions ...	...	...	6, „ 18 „
„ of cases pending...	...	...	1, „ 4 „

The reserve in the Soonderbuns was taken under management during the year, and as the area had been open to all comers for some years past, many wood-cutters would not submit to the forest rules. However, the Conservator issued strict orders that defaulters should be leniently dealt with at the outset, and only in seven cases actual prosecutions were found necessary. The penalties inflicted consisted either merely of the revenue due to Government or of a small money fine in addition.

40. Operations were started on the 11th December 1874, and from that date up to 31st March 1876 the following boats entered the reserve for the purpose of removing forest produce without payment of the revenue due:—

11th to 31st December 1875	...	...	...	1,071 boats.
1st to 31st January 1876	...	...	...	872 „
1st to 29th February „	...	...	...	153 „
1st to 31st March „	...	...	...	22 „
			Total ...	2,118 „

The revenue due from these boats amounts to Rs. 11,550. Of this sum, Rs. 7,743 were paid up subsequently without the assistance of the district authorities. For the recovery of Rs. 2,077 the assistance of the district authorities was appealed to, and Rs. 977 were thus recovered. By prosecutions Rs. 30 were recovered: total recoveries Rs. 8,750; thus leaving a sum of Rs. 2,800 unrecovered. Considering that this result has been obtained without hardly any prosecutions, and that the number of defaulters decreased from 1,071 in December 1875 to 22 in March 1876, the Conservator is of opinion that great credit is due to Mr. A. L. Home, the Deputy Conservator of Forests, for the judicious manner in which he has managed the division. The greater part of the amount still due could not be recovered owing to many boatmen giving false names and addresses.

41. One official has been prosecuted by the Deputy Conservator on a charge of cheating, he having taken eight annas six pie in excess of the authorized amount of revenue due. The man has been fined Rs. 25 by the Magistrate. With this exception, the establishment has worked satisfactorily, a very close supervision having been exercised by the Deputy Conservator of Forests.

42. CHITTAGONG DIVISION

Number of prosecutions	...	...	7, involving 10 persons.
„ of convictions	..	...	3, „ 3 „

In one case a man was sentenced to one year's rigorous imprisonment and a fine of Rs. 200 for counterfeiting a Government mark on a boat. Two revenue collectors and four watchers were tried for extortion, but the cases were dismissed by the Judge. On the other hand, a case against the party who laid the charge in one of these prosecutions, for bringing a false charge against a revenue collector, was pending at the close of the year.

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43. Though the number of prosecutions is small, there is no doubt that the protection of the forests has been greatly improved during the year, and this is due partly to a more adequate rate of pay of the subordinate establishment, and partly to better supervision by the officers of the department consequent on the increase in their number. Thus our agency for the prevention of breaches of the forest rules has been considerably improved.

DEMARCATION OF BOUNDARIES.

DARJEELING DIVISION.

44. In last year's report the Conservator pointed out that most of the boundaries in this division will have to be redemarcated. Up to the present the following boundaries have thus been done :—

(1) *The Teesta—Shukna Terai Range.*

(2) *The Shukna forest.*

(3) *The Bamunpokri forest*, except the north boundary.

(4) *The Dulka Jhar.*

The boundaries of these four forests, which have been actually demarcated with posts and pillars (exclusive of natural boundaries, or where other Government reserves adjoin them), extend over a length of about 24 miles, and their area amounts to 20,190 acres, equal to 31·5 square miles. Along these boundaries a path of from 6 to 15 feet broad, according to circumstances, will be kept open in future.

An effort will be made to complete the demarcation of the remaining reserves west of the Teesta during the year 1876-77.

JULPIGOREE DIVISION.

45. In 1874-75 a beginning was made by demarcating the greater portion of the southern boundary of the Buxa reserve, extending over a length of 7¼ miles.

During the year 1875-76 the following work has been done :—

(1) *The Buxa reserve.*—A further length of 15 miles has been demarcated, leaving a length of about 12 miles still to be done.

(2) *The Borojhar* proposed reserve has been completely demarcated. The length of line on which posts have been erected is 13 miles.

(3) *The Raidak* proposed reserve has been demarcated entirely. Length of demarcated line 10 miles.

(4) *The Bholka* proposed reserve has been completed. Length of demarcated line 8 miles.

Thus altogether a length of 46 miles has been demarcated with boundary posts at an average distance of 500 feet apart. The posts consist of sâl; they are put three feet deep into the ground, and from 12 to 15 feet above the level of the country, with a mound of earth or stones heaped up around each.

PALAMOW DIVISION.

46. The reserves in this division were demarcated with posts some years ago on the occasion of the Palamow settlement. In many places these posts have, however, disappeared; a commencement was made during the year to repair the boundary marks and to clear a path along the boundary lines. The work will be continued, and if possible completed, during the year 1876-77.

SOONDERBUNS DIVISION.

47. The boundaries of the Soonderbuns reserve are formed by the sea on the south and by rivers on the east, north, and west. To distinguish the reserved from the unreserved lands, 66 sign-boards, painted white, have been put up on the upper third of the western, on the northern and eastern boundaries—that is to say, from the junction of the Cobaduck and Shakbaria rivers northwards along the western, northern, and eastern boundary down to the sea. The boards have been nailed to conspicuous trees at and near the mouths of all navigable channels by which the reserve can be entered The remainder of the western boundary has not been demarcated as yet, because proposals will soon be laid before Government to enlarge the reserve somewhat on that side with the view of facilitating protection.

CHITTAGONG DIVISION

48. There are three reserves in this division :—

The Maiyani reserve	..	..	...	339 square miles
The Sitapahar	..	...	...	8 „
The Matamahari	...	..		223 „

and the following demarcation work has been done during the year.

49. The *Maiyani* reserve comprises the area drained by the Maiyani. The northern, eastern, and western boundaries consist of watersheds which cannot be mistaken, and hence the southern boundary has been taken in hand first. From the junction of the Maiyani with the Kasalong, two lines, one running in a westerly direction to the western boundary, and another running nearly in a northerly direction to the eastern boundary, have been demarcated. These two lines, joining the watershed on the west with the watershed on the east, extend over a length of 3½ miles. They have been cleared to a breadth of 9 feet, and fixed by posts placed so that from one the next can be seen. The posts are 11 feet long, of which 3 feet are under ground. Every fifth post has a square 6 inches by 6 inches cut out of the bark and sapwood at a height of about 4 feet 6 inches from the ground, and a figure indicating its position branded on it on the side towards the reserve. The number runs from the mouth of the Maiyani to both sides. There are 107 posts on the western and 49 posts on the eastern line; total 156 posts, at an average distance of 112 feet from each other.

50. *The Sitapahar* reserve is situated on the banks of the Kurnafuli. The boundary, except where it is formed by the river, extends over a length of about 10 miles. Along this a path 9 feet broad has been cleared, and the boundary demarcated with wooden posts, in the same way as described in the case of the Maiyani reserve.

51. *The Matamahari* reserve comprises the area drained by the river of the same name above Alai Kwadong. The western, southern, and eastern boundaries are formed by watersheds. On the north the boundary is formed by a demarcated line running west and east from Alai Kwadong. During the year under review the western part of this line was cut, cleared, and demarcated in the same way as described in the case of the Maiyani reserve. The direction of the line from Alai Kwadong is nearly west, and it ends on the summit of Mraing Toung, thus extending over about 5 miles; it has been demarcated with 127 posts, which stand at an average distance of about 200 feet from each other. The line running east from Alai Kwadong could not be completed owing to the lateness of the season. It will be demarcated in 1876-77.

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52. So far the demarcation work. In connection with it a large amount of boundary surveying has been done, with the view of preparing maps and detailed descriptions of the boundaries, by means of which any part of it can be relaid hereafter should it become obliterated. As this work in most instances has not been completed during the year, the Conservator reserves the record of it for next year's report.

FIRE SUPPRESSION.

53. Until the reserves have been constituted, demarcated, and preliminary working plans prepared, the staff of this department will have little time to bestow upon fire suppression, which undertaking requires the utmost care and attention to make it a success. Nevertheless small experiments have been commenced with the view of finding out how to proceed when operations on a large scale will be started. For two years past we have been fairly successful in these experiments. In ordinary years rain falls in Darjeeling and Julpigoree in spring, and with a fair amount of care it will be practicable to keep fires out of the forests. Not so, however, in years with a specially dry spring, like that under review. No rain fell from October to May, and in consequence we have utterly failed to keep fires out of the experimental areas, the Sivok and Muraghat sâl forests, comprising 1,554 and 10,920 acres respectively.

54. The success achieved in keeping fires out of natural forests differs greatly in different parts of India, owing to the fact that the difficulties vary much. In the Punjab, for instance, no special measures at all are necessary, because jungle fires are not the rule, but the rare exception. In the hills of

the North-Western Provinces the difficulties are light. In Berar and the Central Provinces they are heavier, and considerable care and attention are necessary to be successful; but the difficulties become really formidable in the sub-Himalayan forests of Bengal and Assam outside the evergreen forests, when there is no rain in spring. Here the grass grows to such a height, and it is so densely packed, that it is almost impossible to protect a forest in a specially dry year and under a strong wind. The following instance will illustrate this. In March last Mr. Gamble, the officer in charge of the Darjeeling Division, was watching a fire near the Bamunpokri plantation, when he saw a burning leaf being carried through the air and deposited at a distance of about 100 yards from him, inside the plantation, and near an old nursery. He ran at once, in company with a servant, towards the spot, to reach which took him nearly two minutes, having to cross a small nulla on the way. When he arrived a cooly was already busy beating out the conflagration, which had sprung up the moment the burning leaf dropped. In spite of Mr. Gamble and his two companions' exertions, they could not master the fire, and the old nursery was burnt. In this instance three men could not prevent the spreading of a conflagration which commenced under their very eyes, and it may easily be understood that under such like conditions the watching of the protected tracts is almost out of the question, unless indeed the watchers are stationed only a few paces from each other.

55. Along the southern boundary of the Sivok forest, about two miles in length, a fire line 50 feet broad had been cleared, and extra men were employed to patrol it, the men living in huts on the spot. Adjoining the Sivok sâl forest is the Baikuntpore forest, which is burnt over annually. The spring of 1876 being unusually dry the forest fires in the Baikuntpore forest reached such a vehemence that they swept over our fire line with the greatest ease, and burnt the Sivok sâl forest.

Of the Muraghat sâl forest, all the parts containing tall grass without trees were burnt.

56. Though the results of the past year were totally unsatisfactory, the Conservator is of opinion that the experiment should be repeated by clearing or burning considerably broader fire-lines around the above-mentioned two forests. The expenditure thus likely to be incurred will not be large, as the experimental areas are of limited extent.

The areas protected successfully were the plantations at Bamunpokri, in Darjeeling, and at Sitapahar, in Chittagong, with the exception of an old nursery at the former place, which was burned over. The young trees in the latter, about five years' old, have not been seriously injured, as the grass was not very tall; they have, however, in consequence of the firing, thrown out a large number of side branches.

CREEPER CUTTING.

57. In the Darjeeling and Julpigoree divisions creeper cutting has been commenced in a systematic manner.

DARJEELING DIVISION.

58. Operations were started in 1874-75 by cutting the creepers in the greater portion of the Sivok sâl forest, area 1,554 acres. During the year 1875-76 this forest has been completed, and in addition the following areas have been cleared of creepers:—

		Acres
The Shummur Danga sâl forest, area	...	522
The Gulma Gorumara „ „ „	...	195
Total	...	717
Grand total up to date	...	2,271

The expenditure amounted—

	Rs	A.	P
In 1874-75	103	8	0
„ 1875-76	93	13	6
Total ...	197	5	6,

or 1 anna 5 pie per acre.

In 1876-77 the Champasari and Mohurgong sâl forests will be taken in hand.

JULPIGOREE DIVISION.

59. In 1874-75 a commencement was made by cutting the creepers in compartment 6, block III, Buxa reserve; in 1875-76 compartments 1, 2, 3, and 4, were cleared. The areas and expenditure stand as follows:—

	Acres.	Rs.	A.	P.
Compartment 1	779 ...	62	15	3
Ditto 2	305 ...	16	3	3
Ditto 3	966 ...	71	7	3
Ditto 4	649 ...	61	1	6
Ditto 6	483 ...	18	1	0
Total area ...	3,182 ...	229	12	3,

or 1 anna 2 pie per acre.

60. Creeper cutting, if done systematically by marching gangs of coolies in lines through the forest, is very cheap, and it does a great amount of good. The Conservator hopes to start similar operations in Palamow and Chittagong during the year 1876-77.

ROADS.

DARJEELING DIVISION.

61. The following road works have been done during the year:—

(1) Two new traces, one about four miles and the other about three miles long, have been cut in the Dulka Jhar, with the view of dividing this forest into a number of compartments. The two old traces have been cleared, and a fair-weather road along the boundary has been commenced.

(2) A fair-weather timber road around the Lohagurhi hill; length, about two miles.

(3) A bridle-path from the Koklong river to the cart-road; length, nearly two miles.

(4) A fair-weather road running from the cart-road to the Mahanuddi along the boundary of the reserves; length, about three miles.

(5) A new timber road through the Rungdong forest; length, three miles.

(6) Ditto ditto through the Gulma forest; one mile.

(7) Ditto ditto through the Goramara forest; one mile.

(8) A bridle-path from the place where the Mahanuddi leaves the hills up to the Latpanchor ridge, and on to the junction of the Raing and Teesta rivers, has been commenced during the year, and about ten miles have been completed.

(9) A bridle-path frum Peshok to the Teesta; length, about two miles.

(10) A bridle-path from Peshok to the Rangit; length, about one and a half miles.

(11) The Shukna-Sivok timber road has been repaired.

JULPIGOREE DIVISION.

62. In last year's report it has been stated that a system of roads running parallel with each other, at a mile apart, from east to west, has been commenced in the Buxa reserve. In 1874-75 the 29th, 28th, and 27th mile-roads (on the Cooch Behar—Buxa military road), measuring about 8¾ miles in length, were laid out. During the year 1875-76 these three

roads have been considerably improved, thus rendering them fit for the carting of heavy timber. In addition, the 26th mile road, 3¾ miles in length, and the 25th mile road, 3¾ miles in length—total 7½ miles in length—have been laid out, but the latter has not been quite finished during the year. The work will be proceeded with in 1876-77.

63. No roads have been constructed in the Palamow, Soonderbuns, and Chittagong divisions. The forests in the former are for the present sufficiently accessible by roads, and in the latter two divisions any forest can be reached by water. In Chittagong some roads through the reserves will have to be laid out when the demarcation has been completed.

BUILDINGS.

64. Most of the forest reserves in Bengal are in unhealthy localities, and the rainfall in the province is heavy. Hence it is absolutely necessary to provide rest-houses near the reserves at convenient intervals, or else the officers of the department cannot be expected to visit many of the forests during the rains, and to see that the subordinates attend to their duties.

The following rest-houses and other buildings have been erected during the year:—

65. DARJEELING DIVISION.

(1) A first class rest-house has been erected at Bamunpokri for the officer in charge of the plantation works at that place; cost, Rs. 1,000.

(2) A second class rest-house at Peshok, from which the forests on the Teesta and Rangit can be visited; cost, Rs. 100.

(3) A shed for four elephants has been built at Shukna; cost, Rs. 348.

(4) The repairs of the Sivok first class rest-house have been completed during the year.

66. JULPIGOREE DIVISION.

(1) A second class rest-house has been erected at Borojhar; cost, Rs. 55.

(2) A second class rest-house at Ramshai Hât; cost, Rs. 173.

(3) A shed for five elephants has been built at Rajabatkaua; cost, Rs. 400.

(4) A first class rest-house has been commenced at Buxa for the accommodation of the officer in charge of the Buxa range; estimated cost, Rs. 1,000.

SOONDERBUNS DIVISION.

67. At each of the revenue stations a small house, built in native style, has been erected for the accommodation of the station establishment.

CHITTAGONG DIVISION.

68. A small house for the ranger in charge of the Maiyani reserve has been erected at the junction of the Maiyani and Kasalong rivers.

SECTION IV.—PLANTATIONS.

69. At the beginning of the year under review 427 acres were planted out. To this area 63 acres have been added during the year, bringing the total area at the end of 1875-76 up to 490 acres. These are stocked in the following manner:—

		Acres.
Plantations of oaks, chestnuts, magnolias, and walnuts	...	144
Ditto conifers	...	42
Ditto Spanish chestnuts	...	1
Ditto teak	...	149
Ditto teak and toon	...	153
Ditto bamboos	...	1
Total	...	490

DARJEELING DIVISION.

70. *Rangbul plantation.*—Area, equal to 144 acres In last year's report it was stated that the plantation had been fenced in and divided by bridle-paths into four compartments. The effect of the fencing in has been highly beneficial, a great improvement in the growth of the young trees being already visible.

71. Compartments 1 and 2, equal to 52 acres, were cleared during the year, and 2,000 one-year-old walnut seedlings planted out in them. These are doing pretty well, but it is evident that it would have been better if they had been kept in the nursery for another year.

72. The greater part of the eighteen maunds of walnut, oak, magnolia, chestnut, and cryptomeria seed sown in the autumn of 1874 germinated well. The seedlings were pricked out in the nursery in August and September of 1875. The walnuts have done well, but owing to the early cessation of the rains and the excessively dry winter and spring many of the magnolia and oak seedlings have died. All the streams within reasonable distance dried up, so that the plants could not be sufficiently watered artificially to keep them alive. Care will be taken not to prick out again after the end of August.

73. In 1875-76 the following qualities of indigenous seed were sown:—

Walnuts	...	...	... 2 maunds.
Red magnolia	...	...	... 35 seers.
White „	...	...	... 38 „
Chestnuts	...	...	... 15 „

Neither acorns nor more chestnuts were available, these species not having set fruit. A number of different seeds were received through the kindness of the Conservator of Forests, North-Western Provinces, and the Deputy Conservator, Assam, so that now seedlings of the following species are growing in the nursery:—

Indigenous Trees.

Quercus lamellosa.	Michelia Cathcartii.
Ditto annulata.	Bucklandia populifolia.
Castanopsis tribuloides.	Pinus longifolia.
Magnolia Campbellii.	Juniperus recurva.
Michelia excelsa.	

Semi-indigenous Trees—seed collected in the District.

Cryptomeria Japonica.	Cupressus funebris.

From the North-Western Provinces.

Pinus excelsa.	Cupressus torulosa.
Cedrus Deodara.	Fraxinus floribunda.

From Assam.

Pinus Khasyana.

The walnuts have germinated splendidly, there being hardly two per cent. of vacancies in the rows. The magnolias also are coming up well. The *Bucklandia*, *Pinus longifolia*, and *Juniperus recurva*, have not come up well, but the remaining species have a healthy appearance.

74. The plantation was threatened by fire during April 1876, a most uncommon occurrence in the higher hills. If report is true, no jungle fire has been seen so high up (7,500 feet above the sea) for at least twenty years, and this shows what an exceptionally dry winter and spring there has been. The fire has been kept out of the plantation by a fire-path promptly cleared by the forester in charge.

75. *Dhobi Jhora plantation.*—Area, 42 acres. Nothing has been done during the year beyond protecting it.

76. *Bamunpokri plantation—Teak and Toon.*—The older parts of the plantation have been kept clear of jungle during the year. Compartments I 1*a*, I 1*b*, I 2*a*, I 2*b*, and I 3*a*, are now so far advanced that they will require only one clearing in 1876-77, and in the following year no clearing at all.

77. In addition to the 91 acres already existing, the following areas have been planted out with teak and toon :—

		Acres
A strip of unplanted land adjoining compartments I 1 and I 3	...	5
Compartment I 2*c*	...	19
I 3*b* (partly)	..	8
Total	...	32

According to the plan of operations, I 3*b*, equal to 14 acres, should have been completed. This was found impracticable, because the teak did not germinate well, and there were no more seedlings to plant out. The seedlings had a severe trial to go through owing to the continued drought in winter and spring, but on the whole they stood it better than might have been expected. In compartment I 2*c*, 75 per cent., and in I 3*b*, 50 per cent., of the seedlings survived. The vacancies have been filled up with sâl seed and seedlings.

78. The expenditure on the extension was estimated by the officer in charge of the division to come to Rs. 25, but the actual cost amounts to about Rs. 55.

79. During the spring of 1876 a new nursery extending over nearly two acres, and situated in compartment I 5, has been laid out. In this 4¾ maunds of teak, 2½ maunds of toon, and ½ a maund of sissu, were sown in March and April 1876, and by means of irrigation these seeds have been brought to germinate very well.

The following areas have been cleared during the year for extension :—

		Acres.
A strip along the south boundary	...	10
The rest of compartment I 3*b*	...	6
Compartment I 5	...	32
Total	...	48

80. The wood on these areas has been cut up into firewood and sold to a neighbouring tea-planter.

81. The system of planting has been changed in so far that only the teak seedlings are planted out during the first year, whereas the toon seedlings remain in the nursery until they are twelve months old. In consequence of this a double quantity of toon seed has been sown during the year. It is also intended to give the plantation an admixture of sissu and sâl.

82. The *Mahogany* plants have not done well during the year, and many have died: they had grown well the first two years, and then commenced to fall of.

83. An experimental *bamboo* plantation, extending over one acre, has been laid out during the year by the orders of Government. It is too early to speak of the result.

84. The *India-rubber* seedlings mentioned in last year's report have continued to do well. Several hundreds of them have been planted out in baskets and fixed in the upper parts of useless trees growing near water-courses. The rest of the seedlings are now being planted out in the ground in a moist place, so as to see which are doing best.

85. A new India-rubber nursery on a larger scale has been laid out at Sivok. The seedlings have come up fairly well. The seed sown in natural soil has germinated best, next that sown on charcoal, and least best that sown on broken bricks. The seedlings will be ready to be put out in the spring of 1877.

86. *Rangirum Spanish Chestnuts.*—This little plantation of one acre has done well during the year, no more young trees having died. The vacancies were filled up with the few seedlings raised from the seed received in the spring of 1875. The plantation is now being interplanted with hill toon.

A large quantity of seed has been received in the spring of 1876 and sown in a new nursery near the plantation. The seeds are reported to germinate fairly well.

SOONDERBUNS DIVISION.

87. Regarding a small baobab plantation ordered by Government to be made in the Soonderbuns, Mr. Home writes as follows:—

"I had received instructions to select a suitable compartment within the reserve on which to form an experimental plantation of baobab (*Adansonia digitata*) in the Soonderbuns, with a view to trying its adaptability to cover waste lands in the plains of Bengal at present treeless, and to determining whether it can be grown economically on a large scale.

88. "Though I have been over most parts of the reserve, I have not been able to find any land whatever conveniently situated for the purpose either as to labour or supervision within its boundaries; but having discovered a piece which, on reference to the Commissioner of the Soonderbuns, turns out to be available, I have, since the close of the official year, submitted an application to have 50 acres of this land close to one of the principal revenue stations, where labour and supervision will be at hand, made over to this department for the purpose.

89. "As, however, the undergrowth in the Soonderbuns is, I fancy, about the most vigorous in India, and as coolies, who will work in the forests all the year round at a properly constituted *para* or cutting place, where there is a fakeer to look after the tigers, can with difficulty be induced to land even to nail up boards on to the most conspicuous trees that overhang the rivers at Rs. 10 per month, I am not at all hopeful that the experiment can be carried out even with a fair amount of success or at what will be considered a moderate cost; and it appears to me that under such peculiarly adverse circumstances the result will not give a fair idea either of the adaptability of the tree to the plains of Bengal, or of the probable cost of growing it there.

90. "Dr. King has 200 seedlings available, the produce of all the seed he was able to collect last season, and has promised them to me, and as he informs me they should be planted out finally when they are a foot or 18 inches high, these 200 plants can be brought from the Botanical Gardens as soon as the piece of land required for the purpose is made over to this department."

CHITTAGONG DIVISION.

91. In this division two difficulties had to be contended with—the want of labour and the heavy rainfall during the year. Attempts were made to import eighty dhangar coolies, but the rates were so high that only towards the close of the year an agreement for the supply of the coolies at a reasonable rate could be entered into. Hence the Assistant Conservator had to rely throughout the year on the scanty amount of labour available locally. The average rainfall of Chittagong amounts to about 103 inches, whereas in 1875 it reached 129 inches. During a part of summer rain fell so continuously and in such quantities that many seedlings on the hill sides were literally washed out of the soil.

92. During the year under review the old plantations at Sitapahar, covering 141 acres and stocked with teak, were kept clear of grass, and an extension of 30 acres has been made. The latter area is planted out 5 feet by 5 feet, every fifth plant being toon, and the rest teak. The total number of seedlings planted out amounts to 51,840 of teak and 3,000 of toon.

93. The growth of teak continues to appear promising, and the damage done by borers has been less than in former years.

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94. The total expenditure on forest plantations in Bengal compared with the area stands as follows:—

Area planted ...	...	490 acres
Total expenditure ...	...	37,998 rupees.
Expenditure per acre ...	...	77 „

The plantations made up to date, being of an experimental character, this high expenditure per acre may be justified; but unless it is considerably reduced on extending operations, it will probably be better to spend the money on assisting the natural reproduction of our forests. It is intended to start the latter branch of forest work in 1876-77 in the Buxa reserve in a systematic manner, and when the Bamunpokri block in Darjeeling has been planted up, measures will be taken in that division also to assist the natural reproduction of the forests in a more systematic manner.

SECTION V.—YIELD OF THE FORESTS.

95. The departmental timber operations of 1875-76, as compared with those of 1874-75, will be seen from the following table:—

Year.	Brought to depôt during the year	Sold during the year.
	C. ft.	C. ft.
1874-75	54,320	65,917
1875-76	77,296	55,900

The quantity of timber brought to depôt in 1875-76 is considerably larger than in 1874-75; on the other hand, the quantity sold is less. This is due to the working of the Buxa reserve, from which large quantities of timber have been brought to the depôt during the year, but not sold.

DARJEELING DIVISION.

96. During the year the following timber has been brought to depôt:—

	Pieces.	C. ft.
Sâl logs	361	11,040
Sissu „	828	5,614
Toon „	65	585
Khair „	2	14
Total logs ...	1,256	17,253
Broad gauge sleepers	1,688	5,627
Narrow-gauge „	9,124	12,167
Total sleepers ...	10,812	17,794
Planks and scantlings	115	477
Sâl posts	28	153
Kala khambas	828	(?)
Grand total ...	13,039	35,677

Besides the above, 209 sâl logs and 507 kala khambas were boated from Sivok to Julpigoree.

The broad-gauge sleepers were old, but the narrow-gauge sleepers have been cut during the year.

97. The material, as detailed above, has been derived chiefly from old and from drift timber, and in addition the following green sâl trees have been cut during the year:—

From Lama Gumba forest	20 trees ...	Bamunpokri range.	
„ Kuklong	„ 29 „	Shukna range.	
„ Rungdong	„ 71 „		
„ Gulma hills	„ 50 „		
„ Sivok hills	„ 19 „		
Total ...	189 „		

Of these, 112 were taken to depôt in the log, 50 cut up into sleepers, and 27 have not yet been brought to the depôt. Only trees which cannot be brought to depôt in the log are cut up into sleepers.

98. Amongst the narrow-gauge sleepers are—

1095	of	Saj	*Terminalia tomentosa.*
276	of	Chilauni	*Schima Wallichii.*
		Sida	*Lagerstræmia parviflora.*
		Kumbi	*Careya arborea.*
		Khair	*Acacia catechu.*

These have been cut as an experiment, and they are to be tried on the Northern Bengal State Railway.

99. The following *sales* from Government depôts were effected during the year :—

	Pieces.	C. ft
Sâl logs	356	9,596
Sissu „	229	1,745
Other inferior logs	4	148
Total logs ...	589	11,489
Broad-gauge sleepers ... ...* ...	4,815	16,050
Narrow „	12,616	16,821
Total sleepers ...	17,431	32,871
Scantlings	172	574
Kala khambas and posts	196	.....
Grand total ...	18,388	44,934

The sâl timber has been sold chiefly to the civil Public Works Department and to the Northern Bengal State Railway. The latter bought all the sleepers. The sissu timber has been sold in the local market to carpenters.

100. The financial results of the timber operations in the division are exhibited in the subjoined table:—

Description of timber	Average amount realized per cubic foot.	Total expenditure per cubic foot, including share of establishment, elephants (original purchase and feed and keep), tools, plant, timber roads, &c.	Net surplus per cubic foot.	Remarks.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Sâl logs	1 1 8	0 4 2	0 13 6	
Broad-gauge sâl sleepers ...	0 5 9	0 2 9	0 3 0	Including prices realized from rejected sleepers sold by public auction.
Narrow „ „ ..	1 3 6	0 14 9	0 4 9	
Average of all timber sold during the year ...	0 13 10	0 7 7	0 6 13	

The totals compare as follows with those of 1874-75 :—

	1874-75.	1875-76.
	Rs. A. P.	Rs. A. P.
Average receipts per cubic foot	0 11 0	0 13 10
„ expenditure per cubic foot	0 5 2	0 7 7
Surplus per cubic foot ...	0 5 10	0 6 13

The above figures show that it pays best to sell the timber in the log, as the price of narrow-gauge sleepers has been fixed at Re. 1-12 each. With regard to the broad-gauge sleepers, it should be noted that they are all old, having been cut years ago and left lying about the forests. The expenditure

of two annas nine pies represents the cost of collecting them and the carriage to the depôt. They must be sold for what they may fetch.

101. It has been mentioned above that only such trees which cannot be brought to depôt in the log are cut up into narrow-gauge sleepers for the Northern Bengal State Railway. Nevertheless the surplus per cubic foot is too low to make it worth while continuing the operation, and this the more so as it involves a wastage of timber of 40 per cent. as compared with timber in the log. Taking this into consideration, the department receives two annas ten pies for every cubic foot of round timber cut up into sleepers. If the price per sleeper were fixed at Rs. 2 each, it would bring up the rate per cubic foot of round timber to about five annas, in which case it would be worth while cutting the sleepers instead of disposing of the logs in the open market. The Conservator will make a representation on this subject to the Engineer-in-Chief, Northern Bengal State Railway.

102. In order to ascertain what it would cost to supply the Northern Bengal State Railway with fuel, 1,480 maunds were supplied by the department as an experiment. The expenditure for cutting and carrying to depôt amounted to Rs. 12-8 per 100 maunds; so that, adding a royalty of Rs. 3 per 100 maunds and a share of the cost of establishments, it will not be possible to supply large quantities under Rs. 16 per 100 maunds.

103. In the Bamunpokri plantation block 1,691 maunds of firewood were cut and stacked by the roadside at an average expenditure of Rs. 11 per 100 maunds.

104. The subjoined table exhibits the quantity of material removed from the forests *by private parties*:—

Description.		Number.	Amount realised or due.			Average amount of each.			Remarks.
			Rs	A	P.	Rs.	A.	P.	
(*Juglans regia*)	Akrot	6	150	0	0	25	0	0	
(*Michelia excelsa*)	Hill Champ .. .	40	1,000	0	0	25	0	0	
(*Ditto champaca* and *sp.*) .	Plains „	7	175	0	0	25	0	0	
(*Cedrela toona*) . .	Toon	12	295	0	0	24	12	0	
(*Dalbergia sissu*)	Sissu	2	24	0	0	12	0	0	
(*Quercus lamellosa*) . .	Bük	152	1,824	0	0	12	0	0	
(*Ditto annulata*)	Phalat	27	324	0	0	12	0	0	
(*Castanopsis sp. sp.*) ...	Katus	129	1,548	0	0	12	0	0	
(*Bucklandia populnea*) ...	Pipli	20	240	0	0	12	0	0	
(*Shorea robusta*)	Sâl	26	400	0	0	15	6	1	
(*Artocarpus chaplasha*) ...	Lutter	2	20	0	0	10	0	0	
(*Echinocarpus Dasycarpus*)	Hill Chilanni	13	130	0	0	10	0	0	
(*Schima Wallichii*)	Plains „	58	580	0	0	10	0	0	
(*Terminalia tomentosa*) ...	Saj	26	260	0	0	10	0	0	
(*Ditto myriopteron*) ...	Pani-saj	1	10	0	0	10	0	0	
(*Acrocarpus fraxinifolius*)..	Mandania	3	30	0	0	10	0	0	
(*Duabanga Sonneratoides* ...	Lampatia	113	1,130	0	0	10	0	0	
(*Canarium Bengalense*) ...	Goguldhup.	25	250	0	0	10	0	0	
(*Phœbe lanceolata*)	Lali	37	296	0	0	8	0	0	
(*Machilus Odoratissimus*) ...	Kaula	8	16	0	0	8	0	0	
(*Bombax malabaricum*) ...	Semul	33	198	0	0	6	0	0	
(*Lagerstræmia parviflora*)...	Sida	2	12	0	0	6	0	0	
(*Dillenia pentagyna*) ...	Tatri	1	6	0	0	6	0	0	
(*Sterculia villosa*)	Udal	5	30	0	0	6	0	0	
(*Terminalia belerica*) .	Bahura	4	24	0	0	6	0	0	
(*Nauclea cordifolia*) ...	Karam	7	42	0	0	6	0	0	
(*Actinodaphne sp.*)	Lepchaphal	18	108	0	0	6	0	0	
(*Engelhardtia spicata*) ...	Mahua	3	18	0	0	6	0	0	
( ) ...	Tarsing	33	198	0	0	6	0	0	
( ) ...	Gobria	33	198	0	0	6	0	0	
(*Symplocos sp.*)	Karain	4	24	0	0	6	0	0	
(*Acer Nepalense*)	Kabashi	21	126	0	0	6	0	0	
( ) ...	Bhadras	8	48	0	0	6	0	0	
	Miscellaneous	10	60	0	0	6	0	0	
	Toon logs	4	45	0	0	11	4	0	
	Sâl kala khambas ...	129	319	0	0	2	7	7	
(*Dendrocalamus Hamiltonii*)	Bamboos	50,320	503	4	0	1	0	0	Per 100.
(*Schizostachyum sp.*) .	Malingo bamboos ...	Permits	427	0	0	.	.		
Confiscated.									
	Champ beams	3	12	0	0	4	0	0	
	Lampattia logs	2	21	0	0	10	8	0	
	Malingo bamboos ...	995	2	6	0	.....			

Description	Number	Amount realised or due.	Average amount of each	Remarks
		Rs A. P.	Rs. A. P	
Drift				
Toon	1	9 4 0	9 4 0	
Sissu	4	4 3 0	1 0 9	
Khair	2	1 15 0	0 15 6	
Lampattia ...	5	29 3 0	5 13 5	
Bahura . .	2	22 0 0	11 0 0	
Sâl dugouts .	3	89 0 0	29 10 8	
	10,250	307 8 0	3 0 0	
Firewood.				
Monthly tickets, coolies	889	2,215 0 0	2 7 10	
Ditto carts	42	282 0 0	6 11 5	
Total		14,083 11 0		
Add—Balance due on amount of previous years		4 4 0		
		14,087 15 0		
Deduct—Amount due but not realized...		510 0 0		
Total amount of revenue shown under I-2 *a* & *b* & I-3 ...		13,577 15 0		

105. *India-rubber.*—The trees have been allowed rest throughout the division. The Conservator regrets having to record that many large trees have died in consequence of three years' tapping. There is no doubt that the *Ficus elastica* will stand not nearly so much tapping as has been supposed.

JULPIGOREE DIVISION.

106. The working of the Buxa reserve on Government account according to the working plan incorporated in the report for 1874-75 was commenced in the spring of 1875. It has been continued during the year, and in all other reserves only dry and fallen and a few green trees for local use have been sold. According to the working plan, compartments 1, 2, 3, 4, and 5, block III of the Buxa reserve, should have been cleared of all marketable sâl trees above 5 feet girth, and of all sissu trees above 4 feet 6 inches girth, measured at 4 feet 6 inches above the ground. By a mistake compartment 6 has been taken in hand instead of compartment 5. The following table shows the number of trees cut and the quantity of timber obtained from each compartment:—

Compartments.		Species of trees.	Number of trees felled.	Number of logs obtained
Block III.—*Rajabatkana.*				
Compartment 1		Sâl	630	687
		Sissu	9	9
		Total	639	696
Ditto 2		Sâl	226	236
		Sissu	22	22
		Total ...	248	258
Ditto 3		Sâl	894	1,007
		Sissu	83	95
		Total	977	1,102
Ditto 4		Sâl . .	252	281
		Sissu	26	26
		Total	278	307
Ditto 6		Sâl	638	876
		Sissu ..		
		Total ..	638	876
Total	Actuals ...	Sâl .	2,640	3,087
		Sissu	140	152
		Total	2,780	3,239
	Estimate as per working plan	Sâl .	5,823	.....
		Sissu	484	
		Total ...	6,307	...

This table shows that of the 6,307 trees which appeared on the survey books, only 2,780 trees, or 44 per cent. of the total number, were found of sufficiently good quality to be removed in the log. *This is due chiefly to the effects of jungle fires*, especially when the trees are young. Then the seed for destruction is sown, and by the time the tree reaches maturity it is hollow and unfit for large timber. During the past year the survey of a line of railway running from the Northern Bengal State Railway to Assam has been commenced, and as soon as the construction of the line has been sanctioned all the old deceased trees will be felled and cut up into sleepers. Should the line not be constructed, attempts will be made to cut the trees up into scantlings, and to dispose of them in that shape. In addition to the trees and logs mentioned above, the following were cut during the year, partly to suit the requirements of the Government Telegraph Department and partly in road making :—

In compartment 8	3 sâl trees, giving	6 logs	
Between compartments 7, 8, 9 and 10, on the 26th mile road	16 sâl ditto	17	„
	3 sissu ditto	3	„
	1 khair tree, giving	1 log.	
Total ...	19 sâl trees, giving	23 logs.	
	3 sissu ditto	3	„
	1 khair tree, giving	1 log.	
Grand total ...	23 trees, giving	27 logs.	

107. Of the 3,266 logs cut, 1,378 were dragged by elephants to the carting roads during the year, and 1,348 carted to the Alipore depôt, situated at an average distance of 16 miles from the compartments.

108. The total quantity of timber brought to depôt during the year in division is exhibited below :—

	Pieces.	C ft
Sâl logs	1,394	33,531
Sissu „	1	28
Other „	1	22
Total ...	1,396	33,581
Broad-gauge sâl sleepers (old) ...	228	759
Grand total ...	1,624	34,340

109. The timber *sales* effected during the year stand thus :—

	Pieces	C ft
Sâl logs	122	3,691
Broad-gauge sâl sleepers	828	2,759
Total ...	950	6,450

The timber has been sold chiefly to the Public Works Department, the Telegraph Department, and the Julpigoree District Engineer. The quantity sold is small as compared with that brought to depôt, and this is due to the fact that the greater portion of the timber removed from the Buxa reserve reached the depôt towards the close of the year only. In 1876-77, it is hoped the quantity sold will equal that brought to depôt.

110. The following figures exhibit the financial results of the timber operations :—

Description of Timber	Average amount realized per cubic foot			Total expenditure per cubic foot, including share of establishment, elephants (original purchase and feed and keep), tools, plant, timber roads, &c			Net surplus per cubic foot		
	Rs	A	P.	Rs.	A	P.	Rs	A	P
Sâl logs	1	4	9	0	8	0	0	12	1
Broad gauge sâl sleepers	0	10	5	0	5	6	0	4	11
Average of all timber sold during the year .	1	0	3	0	6	11	0	9	4

Compared with the results of 1874-75, these figures show as follows:—

	1874-75.	1875-76.
	Rs. A. P.	Rs. A. P.
Average receipts per cubic foot	0 12 8	1 0 3
Ditto expenditure ditto	0 7 6	0 6 11
Surplus per cubic foot ...	0 5 2	0 9 4

111. The description and quantity of material removed from the forest *by private parties* is exhibited below:—

	Number.	Amount realised.	Rate.
I 2*a*.—*Timber and Bamboos.*		Rs. A. P.	Rs. A. P.
Sál trees, green	51	510 0 0	10 0 0
Ditto, dry	10	50 0 0	5 0 0
Kala khambas, 3′ to 4½′ girth	157	471 0 0	3 0 0
Ditto, 2′ to 3′ girth	598	598 0 0	1 0 0
Ditto, under 2′ girth	1,114	557 0 0	0 8 0
Sissu, dry	5	15 0 0	3 0 0
Chilauni	26	84 0 0	3 3 2
Amri	2	12 0 0	6 0 0
Khair	1	2 4 0	2 4 0
Dugouts	3	36 0 0	12 0 0
Phool	1	6 0 0	6 0 0
Miscellaneous wood	2	2 0 0	.....
Total ...	1,970	2,343 4 0	.....
Add amount realised on account of former years ..	.....	75 0 0	
Total .		2,418 4 0	
I 2*b*.—*Firewood.*			
Firewood	120 Mds.	3 4 0	
Ditto	2 Carts	0 8 0	
Total ...	..	3 12 0	
I 3—*Drift.*			
Sissu	80	116 0 0	
Semul	5	19 0 0	
Koeree	1	4 0 0	
Bolal	1	6 0 0	
Kadam	1	3 0 0	
Boeri	1	5 0 0	
Bonerbitchi	1	3 0 0	
Miscellaneous wood	12	16 0 0	
Total ...	102	172 0 0	
II 2.—*Minor Produce.*			
Tickets for collecting canes...	21	84 0 0	4 0 0
	21	84 0 0	

PALAMOW DIVISION.

112. The reserves in this division have enjoyed rest during the year, and the same policy will be followed for some time to come, so as to enable them to recover from past maltreatment. Only a limited quantity of minor produce has been removed from the forests, the exact amount of which cannot be given.

SOONDERBUNS DIVISION.

113. In order to ascertain whether the timber of Sunder (*Heritiera littoralis*) is suited for railway sleepers, 721 logs, containing 7,280 cubic feet, were purchased at 9 annas per cubic foot in April and May 1875, and stacked at Dumria depôt for trial on the Northern Bengal State Railway; it having been agreed that the actual expenses incurred should be repaid by the railway. The boating of these logs to Sara, the southern terminus of the Northern Bengal State Railway, was to be arranged for by this department, and 455 logs,

containing 4,516 cubic feet, were sent and delivered accordingly, on which the following expenses were incurred :—

	Rs.	A.	P.
Price of 455 logs, containing 4,517 cubic feet, at 9 annas per cubic foot	2,540	10	0
Boating ditto, including weighing 4,714 maunds 9 seers, at 15 per 100 maunds, from Dumria to Sara	714	8	5
Loading and unloading ditto	178	0	0
Establishments	248	4	7
Total ...	3,681	7	0

This gives the total expenditure per cubic foot of sunder timber delivered at Sara at Rs. 0-12-10.

114. It is understood that these logs gave an outturn of 2,405 narrow gauge sleepers (at 1·33 cubic feet each = 3,198·65 cubic feet of sunder timber, with a waste of 1,318 cubic feet, or 29 per cent.), which makes the cost per sleeper Re. 1-8-6 without the expenditure incurred on account of sawing. The remaining 266 logs have not yet been delivered to the railway.

115. In accordance with the system of management explained in section II of this report, seven revenue stations were established at the most convenient points, and as near the boundaries of the reserve as practicable. The names and situations of the stations will be seen from the subjoined table, the first-mentioned station being that nearest to the sea on the east boundary, and the last-mentioned that on the west boundary at present nearest the sea :—

No.	Name of station.	Where situated.	Date on which first permit was issued
1	Lower Bhola ..	Junction of Bhola and Puneassia rivers	5th February 1876.
2	Upper ,, ...	Ditto of Khurma nuddee and Bhola river	20th December 1875
3	Pussur	Ditto of Pussur river and Mangla nuddee	12th ,, ,,
4	Bhuddur	Ditto of Bhuddur river and Sootur khal	16th January 1876.
5	Seepsah	Ditto of Seepsah river and Dhuki nuddee	11th December 1875
6	Kayra ...	Ditto of Kayra and Shakbaria rivers	19th January 1876.
7	Cobaduck	Ditto of Cobaduck and Arpungassya rivers	15th ,, ,,

It will be observed that the stations were established between 11th December and 5th February 1876; so that the division was only for the two last months of the year under review in regular working order. In addition to the above stations, permits are also issued by the divisional office at Khoolna, and by the officer in charge of the division when on tour.

116. The divisional office issues the following permit form to the revenue stations :—

Forest Department, Bengal.

No. , Soonderbuns Division.
Permit No. of 187 -7 .
Name
Residence

Forest	Date of expiry of grant	Description of timber or other produce	Number or quantity	Rate	Amount.	Remarks.
		Total .				

The 187 *Forester, Soonderbuns Division.*

These forms are printed with duplicate counterparts somewhat similar to cheques, and numbered consecutively throughout with printed numbers, bound in books of a hundred forms each. They are marked with the official divisional stamp, and a careful register is kept showing the numbers on the permit forms in each book as received from the printing office, the date and station to which books containing certain numbers are issued, and the date of receipts from the stations of the counterparts duly filled up, which are returned when all permits in the book have been issued by such station.

117. Each revenue station puts its own consecutive annual numbers on the permits it issues, and these, with all particulars of each permit, are entered daily in the "revenue register," a copy of which is forwarded on the 10th, 20th, and last day of each month to the divisional officer. The total number of boats and amount of revenue received daily for each description of produce are entered in the station cash-book, copies of which are submitted monthly. Concerning each permit-holder the following particulars are entered in the register,—viz. name, father's name, village and thana; and in future, in the remark columns of the permit and register, the district to which it is intended to take the forest produce for sale will also be entered, so that for the next annual report it will be possible to prepare a fairly approximate statement showing the final destination of the various descriptions of produce that may have been taken from the reserve during the official year.

118. On the back of the permit is noted the actual measurements of the boat on which the maundage is calculated, with the name of the station officer who has measured it; the main object of this being to know who is the officer responsible when, on checking the measurements (which is done, when opportunity offers, either within or outside the reserve) they are found to be incorrect. The boats are measured and the maundage calculated according to the directions contained in the Calcutta canal rules. On leaving the reserve the permit-holders show their permits at any revenue-station that may be on their road, when they are cancelled by the officer in charge by writing the word "cancelled," with the dates in red ink across them.

119. Each station is visited as often as possible during the month by the divisional officer, when the entries in the daily revenue register, with the counterpart of the permits and the daily totals entered in the cash-book, are checked, the books initialled, and whatever revenue may have been collected since the last visit is taken over. The establishments are paid on the first inspection of the station in each month.

120. The forester in charge of each station keeps a note-book, in which it was intended should be entered such particulars regarding the names of fakeers in charge of paras, in what allotments the paras are situated, dates of commencing work in different parts of the reserve, and of abandoning or changing the position of paras, &c., reports concerning tigers, and such other useful or interesting information as they might be able to gather; but owing to the men being all new to the work, and the constant resignations of many of the foresters appointed during the first three months, who did not find the jungle life suited to their tastes, it has not been possible to make use of these notes to any extent. But it is hoped, as gradually the right sort of men are being employed on the work, that these note-books will be more useful in future.

A large number of the boatmen enter the reserve without knowing at all whereabout work is going on, and as they will not land in the forests except at a properly established para, they often waste a number of days drifting about the rivers in search of a fakeer; and these notes were ordered to be kept so that the foresters might be able to give the wood-cutters such information on this subject as they require.

121. The subjoined table shows the description and quantity of forest material removed from the reserve between the 11th December 1875 and the 31st March 1876, according to revenue stations :—

Revenue stations.	Produce.	Number of boats.	Number of maunds.	Amount realized and due.	Total per station.	Rate per 100 maunds.	Number of permits issued.
				Rs. A. P.	Rs. A. P.	Rs. A. P.	
Station No. 1, Lower Bhola river	Sundri timber	21	4,679	292 7 0		6 4 0	187 permits issued from 5th February 1876.
	Goran posts	160	41,463	647 15 9		1 9 0	
	Firewood	8	4,742	74 1 6		1 9 0	
	Golpatta	4	550	8 9 6	1,022 15 9	1 9 0	
Station No. 2, Upper Bhola river	Sundri timber	78½	15,276	954 12 0		6 4 0	284 permits issued from 20th December 1875.
	Goran posts	59	20,579	321 8 9		1 9 0	
	Firewood	85½	26,335	411 7 9		1 9 0	
	Golpatta	73	15,479	241 15 9		1 9 0	
	Shells	2	704	11 0 0		1 9 0	
	Canes	29	1,863	29 1 9	1,969 2 0	1 9 0	
Station No. 3, Pussur river ...	Sundri timber	144	29,314½	1,832 2 9		6 4 0	628 permits issued from 12th December 1875.
	Goran posts	2	362	5 10 6		1 9 0	
	Firewood	531	195,944	3,061 10 0		1 9 0	
	Nul	6	4,151	64 13 9		1 9 0	
	Golpatta	103	30,232	472 6 0		1 9 0	
	Shells	5	327	5 1 9	5,441 12 9	1 9 0	
Station No. 4, Bhuddur river	Sundri timber	7	700	43 12 0		6 4 0	928 permits issued from 16th January 1876.
	Firewood	658	147,636	2,306 13 0		1 9 0	
	Golpatta	337	69,258	1,082 2 6	3,432 11 6	1 9 0	
Station No. 5, Seepsah river ...	Sundri timber	9	1,546	96 10 0		6 4 0	1,070 permits issued from 11th December 1875.
	Firewood	710	151,081	2,360 10 3		1 9 0	
	Nul	3	489	7 10 3		1 9 0	
	Golpatta	224	52,264	816 10 0		1 9 0	
	Hental	4	2,125	33 3 3	3,314 11 9	1 9 0	
Station No. 6, Kayra river ...	Sundri timber	3	504	31 8 0		6 4 0	347 permits issued from 19th January 1876.
	Firewood	146	33,601	525 0 3		1 9 0	
	Golpatta	199	40,648	635 2 0	1,191 10 3	1 9 0	
Station No. 7, Cobaduck river	Sundri timber	1	128	8 0 0		6 4 0	359 permits issued from 15th January 1876.
	Goran posts	13	6,525	101 15 3		1 9 0	
	Firewood	518	317,460	4,960 5 0		1 9 0	
	Golpatta	39	11,155	174 4 9	5,244 9 0	1 9 0	
Tour Office ...	Sundri timber	8	1,261	78 13 0		6 4 0	353 permits issued from 12th December 1875.
	Goran posts	5	2,251	35 2 9		1 9 0	
	Firewood	296	92,543	1,445 15 9		1 9 0	
	Nul	36	25,496	398 6 0		1 9 0	
	Golpatta	46	12,483	195 0 9	2,153 6 3	1 9 0	
Divisional Office	Sundri timber	58	6,954½	434 10 6		6 4 0	372 permits issued from 7th January 1876.
	Goran posts	20	3,205	50 1 3		1 9 0	
	Firewood	553	236,191	3,690 7 9	4,175 3 6	1 9 0	
Collected from defaulters through civil officers, criminal courts, and police ...	Sundri timber	39	10,506	656 10 0		6 4 0	
	Firewood	66½	24,835	388 0 9		1 9 0	
	Golpatta	1½	360	5 10 0		1 9 0	
	Shells	1½	420	6 9 0	1,056 13 9	1 9 0	
	Total ...	5,321	1,643,626½	.....	29,003 10 6		
	Deduct amount due not yet realised	.....	.....	.....	3 0 0		
	Total amount shown as revenue under I 2 *a* and *b* and II 2	.....	.....	.....	29,000 10 6		

If arranged according to the districts to which the boats belong, the following table is obtained :—

Districts.	Sundri timber.			Goran post.			Firewood.			Minor produce.			Total for district.		
	Number of boats.	Number of maunds.	Amount.	Number of boats.	Number of maunds.	Amount.	Number of boats.	Number of maunds.	Amount.	Number of boats.	Number of maunds.	Amount.	Number of boats.	Number of maunds.	Amount.
			Rs. A. P.			Rs. A. P.			Rs. A. P.			Rs. A. P.			Rs. A. P.
Howrah ...	...	.....	.....	...	.....	.....	90	73,339	1,145 14 9	...	.....	.....	90	73,339	1,145 14 9
24-Pergunnahs ...	5	464	29 0 0	...	.....	.....	401	1,52,935	2,389 9 9	225	51,063	797 13 9	631	2,04,462	3,216 7 6
Calcutta ...	...	.....	.....	11	4,481	70 0 3	105	67,431	1,053 9 9	1	396	6 3 0	117	72,308	1,129 13 0
Nuddea ...	...	.....	.....	...	.....	.....	.....	.....	.....	2	918	14 5 6	2	918	14 5 6
Jessore ...	282	53,727½	3,357 15 9	72	16,650	260 2 6	2,912½	9,00,906	14,076 10 6	844½	1,85,075	2,905 13 9	4,112	11,57,358½	20,600 10 6
Rajshahye ...	2	626	39 2 0	...	.....	.....	1	256	4 0 0	4	5,694	88 15 6	7	6,576	132 1 6
Bogra ...	...	.....	.....	...	.....	.....	.....	.....	.....	3	1,749	27 5 3	3	1,749	27 5 3
Pubna ...	4	528	35 0 0	10	1,956	30 9 0	5	2,275	35 8 9	17	15,916	246 11 0	36	20,675	347 12 9
Furreedpore ...	4	806	50 8 0	1	288	4 8 0	8	1,696	26 8 0	10	5,711	89 3 9	23	8,503	170 11 9
Backergunge ...	71½	14,715½	919 11 6	146	42,894	670 1 0	1½	283	4 6 9	6	582	9 1 6	225	58,464½	1,603 4 9
Chittagong ...	...	.....	.....	11	3,190	40 13 6	.....	.....	.....	...	.....	.....	11	3,190	40 13 6
Noakholly ...	...	.....	.....	16	4,408	68 14 0	.....	.....	.....	...	.....	.....	16	4,408	68 14 0
Tipperah ...	...	.....	.....	1	528	8 4 0	1	504	7 14 0	...	.....	.....	2	1,032	16 2 0
Chandernagore ...	...	.....	.....	...	.....	.....	46	30,551	477 5 9	...	.....	.....	46	30,551	477 5 9
Total ...	368½	70,869½	4,429 5 3	268	74,385	1,163 4 3	3,571½	12,30,176	19,221 8 0	1,112½	2,68,004	4,187 9 0	5,321	16,42,434½	29,000 10 6

NOTE.—Date on which first permit was issued, 11th December 1875. Total number of permits issued, 4,528.

These figures show that hitherto chiefly the Jessore district has been affected by the constitution of the reserve, but doubtlessly a large portion of the quantity of material shown against this district has been exported to other districts. It is now proposed to add the Satkhira Soonderbuns, whence the Calcutta supply has been chiefly derived during the past year. In this manner the cutting will be pretty equally distributed over all the sunder-bearing tracts, and the destruction of the Satkhira Soonderbuns prevented, which latter would otherwise be affected in a comparatively short time.

CHITTAGONG DIVISION.

122. The yield of the forests during the year under review has been considerably smaller than that of 1874-75, and this is due chiefly to the following causes:—

(1) The year 1874-75 having been a bad shipping season both at Chittagong and at Akyab, the surplus labour proceeded to the forests and brought down a larger supply of material than found a ready market. The consequence of this was that less material has been brought down in 1875-76.

(2) Some of the best forests, on being gazetted as reserves, have been closed against timber cutting for the present.

(3) With the view of discouraging the manufacture of dugouts, the revenue due on them has been considerably raised.

123. The following statement exhibits the quantities of timber brought out during the last five years:—

Description of Timber.	Years.				
	1871-72.	1872-73.	1873-74	1874-75.	1875-76.
	Tons.	Tons.	Tons.	Tons.	Tons.
Timber in the log	443	1,056	610	1,130	1,032
„ boats	244	1,089	1,640	3,794	2,463
Beams and planks	841	19	509	1,110	177
Total ...	1,518	2,164	2,759	6,034	3,672

It will be observed that the yield, though smaller than that of 1874-75, is in excess of that of previous years. The falling off, as compared with last year, is chiefly in dugouts and sawn timber, whereas there is only a small falling off in timber in the log. This is precisely what is desired by the department, as not only in the manufacture of dugouts, but also in the rough way in which timber is sawn up in the forests, a great wastage takes place, whereas if the timber reaches the place of consumption in the log, every stick is made use of.

124. Of minor forest produce the following quantities have been removed during the year:—

Bamboos, orah	163,115
„ dolu	726,120
„ muli	17,754,291
Sun-grass, bundles	4,957,644
Canes	4,869,858
Gurjun-oil	816 mds.

SECTION VI.—FINANCIAL.

125. The financial results of the year, as compared with those of 1874-75, show as follows:—

	1874-75.	1875-76	Increase.	Decrease.
	Rs	Rs	Rs	Rs
Receipts	1,86,914	1,98,274	12,360	
Expenditure	98,654	1,39,086	40,432	
Surplus	87,260	59,188	.	28,072
Net result of the year's transactions ..	92,647	92,912	265	

126. The revenue of the year under review is Rs. 12,360 in excess of that of the previous year, but the actual collections were larger by Rs. 23,512; a sum of Rs. 11,151-15-3, due to the Rajah of Hill Tipperah on account of 1874-75, and paid to him in 1875-76, having been deducted from the revenue of the last-mentioned year.

127. Owing to the employment of a much larger superior and subordinate staff and the opening out of two new divisions the expenditure has increased by Rs. 40,432, thereby reducing the surplus by Rs. 28,072. On the other hand, the net result of 1875-76, in spite of the increase of expenditure, is a little in excess of that of 1874-75.

128. The good effect of the increased staff and of the extension of operations has already favourably influenced the receipts, but it will no doubt do so in a much higher degree during the next year or two.

129. The several divisions participate in the net result of the year's transactions in the following ratio, the expenditure on account of direction having been divided equally amongst the divisions:—

Net result of the year's transactions.

	Surplus	Deficit
Darjeeling Division	14,824	
Julpigoree „	6,233	
Palamow „	...	8,562
Soonderbuns „	14,863	
Chittagong „	65,100	
Civil officers „	453	
Total ...	92,912	

In 1874-75 three divisions—Julpigoree, Palamow, and Sunderbuns—worked with a deficit, and during the year under review only one—Palamow. The forests in the latter division have been overworked to a very large extent, and all that can be expected for some years to come is that the division will just pay its way.

130. It will be interesting to compare the financial results of the last five years, which stand as follows (exclusive of the territory now forming the Assam Chief Commissionership, and deducting two-fifths of the direction charges on account of Assam and Cachar, while they belonged to Bengal):—

Year.	Receipts.	Expenditure	Surplus
	Rs	Rs.	Rs
1871-72	87,260	67,506	19,754
1872 73	1,16 690	62,554	54,136
1873 74	1,23,732	81,068	42,664
1874-75	1,85,914	98,654	87,260
1875-76	1,98,274	1,39,086	59,188
Increase during five years { In rupees ..	1,11,014	71,580	39,434
Increase during five years { In per cent	127	106	200

These figures show that the receipts have increased in a greater ratio than the expenditure, and that in consequence the surplus has increased by 200 per cent. during the last five years.

131. It is difficult to say what the future financial results will be, but the Conservator may state that he thinks the surplus will rise to about Rs. 1,50,000 during the next two years, after which its increase will be slow, as many of the sub-Himalayan and all the forests in Chota Nagpore, Shahabad, and Sonthal Pergunnahs have been overworked formerly, and require rest for years to come.

132. The outstandings of the department rose from Rs. 8,008 to Rs. 12,383 during the year. Of this sum, Rs. 6,350 are in the hands of the officials of the department for current working expenses. Of the remaining Rs. 6,033, only Rs 554 are new outstandings, whereas the balance of Rs. 5,479 is represented by old outstandings, which are irrecoverable. An application to write them off to profit and loss will be submitted in a separate communication.

SECTION VII.—GENERAL.

ELEPHANTS.

133. At the beginning of the year the department owned seven elephants, and during the year seven more were imported from Burmah at a total cost of about Rs. 10,000. These fourteen animals are distributed as follows:—

Darjeeling Division	...	...	...	...	4
Julpigoree "	...	...	...	...	7
Palamow "	...	...	...	...	1
Chittagong "	...	...	...	...	2
			Total	...	14

Of the four elephants in the Darjeeling Division, three are used for timber works and one for travelling in the Terai. No more animals are required for the present in this division.

In Julpigoree two animals are set aside for the two officers of the division, and five are timber elephants. Of the latter, seven are required, five for the Buxa reserve and two for the Apalchand reserve.

One elephant for Palamow is sufficient for the present. None are required in the Soonderbuns, and two are all that are wanted for Chittagong for some time to come.

The Conservator has shifted hitherto as well as he could by taking an elephant either from the Julpigoree or Darjeeling Division. Two animals should now be provided for his use, and two more are wanted for the officers to be posted to the new reserves in Chota Nagpore:—

Total number now available	...	...	14
Ditto required	...	...	20
Number to be bought	...	...	6

Of the twenty elephants, ten are for travelling purposes and ten for timber works. It is intended to buy every year two additional animals until the full number has been made up.

CONSERVATOR'S TOUR.

134. The Conservator left on the 25th September 1875 for Simla, to attend the second general Indian forest conference held at that place, and he returned to head-quarters on the 20th October. On the 7th November he started on his inspection tour, and he returned finally to head-quarters on the 12th April 1876. During this time he visited almost every forest in the Darjeeling Division, and every reserve in the Julpigoree Division, selecting at the same time new reserves covering an area of about 280 square miles.

SERVICES OF OFFICERS.

135. The Conservator has much pleasure in recording that the officers of the department have worked satisfactorily during the year.

Mr. A. L. Home, Deputy Conservator, 2nd grade, was in charge of the Julpigoree Division from April to July 1875, and in charge of the Soonderbuns Division for the rest of the year. He deserves great credit for the energetic and judicious manner in which he started the administration in the last-mentioned division.

Mr. J. C. McDonell, Assistant Conservator, 1st grade, joined from the Punjab in January 1876 and assumed charge of the Julpigoree Division. The Conservator of Forests, Punjab, has expressed himself in favourable terms on Mr. McDonell's services in that province. During the last two and a half months of the year, when in charge of the Julpigoree Division, he accompanied the Conservator through his division, and made himself acquainted with the mode of working followed in it.

Mr. H. H. Davis, Assistant Conservator, 2nd grade, held charge of the Chittagong Division throughout the year. He discharged his duties in a satisfactory manner.

Mr. J. S. Gamble, M.A., Assistant Conservator, 2nd grade, was in charge of the Darjeeling Division during the year. He did full justice to his reputation as a superior and active officer.

Mr. W. Johnston, Assistant Conservator, 3rd grade, was in charge of the Palamow Division from April to December 1875, when he was attached to the Conservator's Office, and employed until the close of the year in examining the proposed reserves in the Shahabad district and in the Sonthal Pergunnahs, which work he executed to the entire satisfaction of the Conservator.

Mr. E. Fuchs, Assistant Conservator, 3rd grade, was attached to the Darjeeling Division from April to July 1875, in temporary charge of the Julpigoree Division from July 1875 until January 1876, and in charge of the Buxa Sub-division during the rest of the year. He worked hard and in a satisfactory manner on the demarcation of the reserves in the Buxa Sub-division in the latter part of the year.

Messrs. E. G. Chester, F. B. Manson, and F. H. Bonham Carter, Assistant Conservators, 3rd grade, joined the department, the former two in January and the latter in March 1876, having been sent out by Her Majesty's Secretary of State for India after a course of training on the continent of Europe.

Mr. G. A. Richardson, Sub-Assistant Conservator, was transferred to Bengal from the Central Provinces in December 1875, and he held charge of the Palamow Division until the end of the year. The Conservator is satisfied with the manner in which he has discharged his duties.

FORM No. 21.

FORM No. 21.

FOREST DEPARTMENT, BENGAL.

Annual Summary of Revenue and Expenditure for the year 1875-76

CLASSIFICATION.	Direction.	Darjeeling Division.	Julpigoree Division.	Palamow Division.	Soonderbuns Division.	Chittagong Division.	Transactions on account of Dacca and Assam Divisions adjusted during the year.	Total.	Civil Officers.	Grand Total
REVENUE.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
I.—Revenue from wood—										
1. Brought to depôt by departmental agency—										
a.—Timber and bamboos	.....	46,508 15 6	6,883 11 7	.....	3,681 7 0	.....	.....	57,074 2 1	.....	57,074 2 1
b.—Firewood and charcoal	.....	215 5 9	.....	.....	.....	.....	.....	215 5 9	.....	215 5 9
c.—Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. Wood removed from the forests by purchasers, license-holders, and permit-holders—										
a.—Timber and bamboos	.....	10,602 8 0	2,418 4 0	391 12 0	5,595 1 6	67,015 13 6	.....	86,023 7 0	125 0 0	86,148 7 0
b.—Firewood and charcoal	.....	2,864 8 0	3 12 0	1 2 0	19,221 8 0	.....	.....	22,030 14 0	.....	22,030 14 0
3. From confiscated drift and waif wood	.....	170 15 0	172 0 0	.....	.....	.....	.....	342 15 0	.....	342 15 0
II.—Revenue from minor produce—										
1. Grazing dues and sale of grass	.....	2,438 13 8	272 0 0	197 15 0	.....	.....	.....	2,908 12 8	.....	2,908 12 8
2. Other minor produce	.....	1,535 2 0	84 0 0	75 14 0	4,184 1 0	14,061 9 3	.....	19,943 10 3	.....	19,943 10 3
III.—Duty on produce of foreign or private forests imported into British territory—										
1. On wood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. On other forest produce	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
IV.—Miscellaneous—										
1. From fines and forfeitures	.....	67 4 0	266 12 3	.....	19 11 0	.....	.....	353 11 3	.....	353 11 3
2. From refunds to the department	.....	0 5 2	.....	.....	.....	800 1 4	.....	800 6 6	.....	800 6 6
3. From other sources	10 0 0	1,947 3 5	73 6 1	352 10 9	20 0 0	5,724 0 0	.....	8,127 4 3	328 5 0	8,455 9 3
Total ...	10 0 0	66,294 0 6	10,173 13 11	1,019 5 9	32,731 12 6	87,601 8 1	.....	1,97,826 8 9	453 5 0	1,98,273 13 9
EXPENDITURE.										
A.—Conservancy and Works.										
I.—Cost of timber operations—										
1. On wood brought to depôt by departmental agency—										
a.—Timber	.....	12,824 2 9	11,586 3 10	.....	5,167 9 9	.....	.....	29,578 0 4	.....	29,578 0 4
b.—Firewood and charcoal	.....	406 3 3	.....	.....	.....	.....	.....	406 3 3	.....	406 3 3
c.—Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. On wood removed from the forests by purchasers, license-holders, and permit-holders—										
a.—Timber	.....	.....	.....	.....	.....	189 0 6	.....	189 0 6	.....	189 0 6
b.—Firewood and charcoal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3. On confiscated drift and waif wood	.....	.....	1 0 0	.....	.....	.....	.....	1 0 0	.....	1 0 0
II.—Cost of collecting minor produce—										
1. Grazing and sale of grass	.....	.....	1 0 0	.....	.....	.....	.....	1 0 0		1 0 0
2. Other forest produce	.....	53 4 0	.....	.....	.....	451 9 10	.....	504 13 10	...	504 13 10

III.—Cost of forest organization—											
1. Demarcation lines and boundary pillars or marks ...	.....	157 15 0	1,076 11 0	.....	631 5 0	117 5 0	.....	1,983 4 0	.....	1,983 4 0
2. Working plans ...	.....	57 4 6	10 9 6	20 0 0	.....	.....	.....	87 14 0	.....	87 14 0
3. Surveys ...	213 10 0	5 8 0	.....	.....	.....	.....	.....	219 2 0	.....	219 2 0
IV.—Cost of the treatment and creation of forests—										
1. Natural forests—										
a.—Protection from fire ...	.....	272 15 6	135 12 0	.....	.....	.....	.....	408 11 6	.....	408 11 6
b.—Fencing and enclosing ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
c.—Improvement and conservation ...	.....	197 5 6	229 12 3	.....	.....	.....	.....	427 1 9	.....	427 1 9
d.—Reboisement or restoration of denuded areas ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. Artificial forests—										
a.—Formation ...	.....	3,473 1 8	.....	.....	.....	2,098 15 10	85 0 0	5,657 1 6	.....	5,657 1 6
b.—Protection from fire ...	.....	216 7 0	.....	.....	.....	.....	.....	216 7 0	.....	216 7 0
c.—Improvement and conservation ...	.....	1,062 11 0	12 8 0	.....	.....	.....	.....	1,075 3 0	.....	1,075 3 0
d.—Fencing and enclosing ...	.....	223 10 6	.....	.....	.....	.....	.....	223 10 6	.....	223 10 6
V.—Rent of leased forests—										
VI.—Cost of collecting duty on produce of foreign or private forests imported into British territory—										
VII.—Works of utility for the development of forests—										
1. Roads and bridges ...	.....	856 14 8	282 7 6	.....	.....	46 7 9	.....	1,185 13 11	.....	1,185 13 11
2. Buildings and offices ...	.....	1,193 0 1	2,585 1 11	.....	.....	134 11 8	.....	3,912 13 8	.....	3,912 13 8
3. Compensation for land taken up for forest purposes or for extinction of forest rights ...	.....	.....	.....	.....	.....	5,207 0 0	.....	5,207 0 0	.....	5,207 0 0
4. Other works ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
VIII.—Cost of departmental cattle—										
1. Purchase of stock ...	.....	2,900 0 0	3,728 0 0	1,100 0 0	.....	3,165 14 9	.....	10,893 14 9	.....	10,893 14 9
2. Hire of stock ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3. Feed and keep of cattle ...	.....	919 9 6	2,496 8 2	.....	.....	74 5 0	.....	3,490 6 8	.....	3,490 6 8
IX.—Cost of departmental plant and tools—										
1. For timber and wood operations ...	.....	162 2 6	136 6 0	.....	.....	15 0 0	.....	313 8 6	.....	313 8 6
2. For other purposes ...	.....	306 15 10	542 14 0	8 14 0	997 11 0	146 0 0	.....	2,002 6 10	.....	2,002 6 10
X.—Miscellaneous charges—										
1. Refunds ...	.....	10 0 0	.....	.....	.....	.....	.....	10 0 0	.....	10 0 0
2. Law charges ...	.....	0 12 0	.....	.....	.....	.....	.....	0 12 0	.....	0 12 0
3. Other ...	.....	205 8 10	.....	5 14 0	46 5 3	2 4 0	.....	260 0 1	.....	260 0 1
Total of *A.—Conservancy and Works* ...	213 10 0	25,505 8 1	22,824 14 2	1,134 12 0	6,842 15 0	11,648 10 4	85 0 0	68,255 5 7	.....	68,255 5 7
B.—Establishments.										
I.—Salaries—										
1. Pay of Conservator ...	12,000 0 0	.....	.....	.....	.....	.....	.....	12,000 0 0	.....	12,000 0 0
2. Pay of control and executive officers ...	500 0 0	5,288 11 3	5,975 0 0	3,300 0 0	5,600 0 0	4,700 0 0	.....	25,363 11 3	.....	25,363 11 3
3. Protective establishment ...	.....	3,836 0 9	3,095 13 3	576 1 2	1,171 15 4	3,677 11 0	212 10 8	12,570 4 2	.....	12,570 4 2
4. Office establishment ...	4,575 3 6	1,015 10 1	764 7 2	93 14 3	505 14 8	972 8 0	7 4 0	7,934 13 8	.....	7,934 13 8
5. Deputation and special allowances ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
I.—Travelling allowances—										
1. Conservator ...	1,750 0 0	.....	.....	.....	.....	.....	.....	1,750 0 0	.....	1,750 0 0
2. Control and executive officers ...	.....	1,587 12 0	1,283 6 0	1,010 6 11	119 4 0	1,008 8 0	.....	5,009 4 11	.....	5,009 4 11
3. Protective establishment ...	.....	22 14 9	73 0 2	.....	.....	311 7 4	.....	407 6 3	.....	407 6 3
4. Office establishment ...	273 15 3	116 15 6	49 11 4	.....	58 3 3	86 3 4	.....	585 0 8	.....	585 0 8
III.—Contingencies—										
1. Stationery ...	.....	1 0 0	2 5 0	21 3 6	.....	.....	.....	24 8 6	.....	24 8 6
2. Carriage of tents and records ...	752 15 3	90 0 6	51 2 0	86 8 3	81 14 0	32 2 0	45 0 0	1,129 10 0	.....	1,129 10 0
3. Pay of police guards ...	.....	.....	.....	.....	124 6 2	.....	.....	124 6 2	.....	124 6 2
4. Sundries ...	884 3 2	303 15 6	214 3 3	223 3 8	1,517 3 11	191 12 10	73 14 5	3,408 8 9	.....	3,408 8 9
5. Official postage ...	179 0 6	89 5 6	77 10 0	11 8 0	56 7 0	19 7 0	.....	433 6 0	.....	433 6 0
Total of *B.—Establishments* ...	20,915 5 8	12,432 5 10	11,586 10 2	5,322 13 9	9,235 4 4	10,999 11 6	338 13 1	70,831 0 4	.....	70,831 0 4
Grand total of all expenditure ...	21,128 15 8	37,937 13 11	34,411 8 4	6,457 9 9	16,078 3 4	22,648 5 10	423 13 1	1,39,086 5 11	.....	1,39,086 5 11

Form No. 22.

FOREST DEPARTMENT, BENGAL.

Annual Abstract Account of the Cash Transactions of the Department during the year 1875-76.

Dr.

	Rs. A. P.	Rs. A. P.
To cash in hand on the 1st April 1875	502 2 3	502 2 3
„ Revenue received	1,98,273 13 9	1,98,273 13 9
„ Remittances from State treasuries	1,51,879 1 6	
„ Remittances from the Government Mathematical Instrument Department by transfer	721 11 0	
„ Remittance from the Government of the Central Provinces by transfer ...	413 0 0	
„ Remittances from the Indian Medical Department by transfer	56 8 4	1,53,070 4 10
„ Provincial Services, Medical	4 0 0	4 0 0
„ Advances recoverable ...	40,578 11 3	40,578 11 3
„ Recovery of advances made by the Accountant General, Bengal	166 10 8	166 10 8
„ Uncovenanted Service Family Pension Fund	1,360 14 0	1,360 14 0
Total		3,93,956 8 9

Cr.

	Rs. A. P.	Rs. A. P.
By expenditure of the Department—		
A ...	68,255 5 7	
B ...	70,831 0 4	1,39,086 5 11
„ Remittances to public treasuries	1,56,234 3 8	
„ Remittances to Department of Public Works by transfer	9,044 14 5	
„ Remittances to Northern Bengal State Railway by transfer	40,156 10 0	
„ Remittances to the Government Mathematical Instrument Department by transfer	10 0 0	
„ Remittances to the Government of the Central Provinces by transfer ...	413 0 0	
„ Remittances to the Government Telegraph Department by transfer ...	2,468 0 4	2,09,326 12 5
„ Provincial Services, Medical	4 0 0	4 0 0
„ Advances recoverable ...	44,953 12 1	44,953 12 1
„ Cash balance in hand on the 31st March 1876 ...	1,585 10 4	1,585 10 4
Total		3,93,956 8 9

Form No. 23.

FOREST DEPARTMENT, BENGAL.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers for 1875-76.

Divisions.	Department Debtor.			Department Creditor.			Balances due.	
	At commencement of the year.	Recoveries in cash, and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments during year.	At close of year.	To department (outstandings).	By department (liabilities).
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	.....	342 8 0	342 8 0	262 8 0	80 0 0	342 8 0	.....	.....
Darjeeling Division... ...	.....	21,296 9 7	21,296 9 7	5,635 9 0	21,454 7 1	27,090 0 1	5,793 6 6	.....
Julpigoree „	.....	14,881 7 5	14,881 7 5	1,788 1 2	15,452 7 9	17,240 8 11	3,301 14 1	942 12 7
Palamow „	.....	.....	.....	130 2 0	0 8 0	130 10 0	130 10 0	.....
Soonderbunds „	.....	2,542 4 7	2,542 4 7	.....	2,875 7 6	2,875 7 6	333 2 11	.....
Chittagong „	.....	2,458 10 3	2,458 10 3	179 7 1	5,090 13 9	5,270 4 10	2,811 10 7	.....
Dacca „ (late) ...	.....	.....	.....	12 0 0	.....	12 0 0	12 0 0	.....
Total	.....	41,521 7 10*	41,521 7 10	8,007 11 3	44,953 12 1	52,961 7 4	12,382 12 1	942 12 7

	Rs. A. P.
* Recoveries in cash	40,578 11 3
Value of work done	942 12 7
Total ...	41,521 7 10

FORM No. 24.

FOREST DEPARTMENT, BENGAL.

Statement of Timber brought to Depôt from the different Forest Divisions during the year 1875-76.

Name of River or Division.	Name of depôt.	Name of forest from which received.	Description of timber.	Pieces.	Cubic feet.	Total of each River or Division. Pieces.	Total of each River or Division. Cubic feet.
Darjeeling ...	Silligoree ...	Shukna ...	Kala khambas	289	.....		
		Lohagarhi ...	Sâl sleepers, narrow-gauge ...	2,566	3,422		
			Toona	30	.....		
	Sivok ...	Sivok plains ...	Sâl logs	34	530		
			Kala khambas...	509	.....		
		Sivok hills ...	Sâl logs	19	607		
		Teesta river ...	" logs	53	1,776		
			" sleepers, broad-gauge	14	47		
			Sissu logs	2	42		
		Reyang ...	Sâl "	124	4,023		
			" "	81	2,762		
			" posts	24	143		
			" sleepers, broad-gauge	1,665	5,550		
			" sleepers, narrow-gauge ...	5,087	6,785		
			" scantlings	115	477		
			Saj sleepers, narrow-gauge... ...	1,095	1,400		
			Chilauni, sida, and kumbi sleepers, narrow-gauge	276	367		
	Shukna ...	Shukna ...	Sissu logs	136	977		
			Sâl "	12	365		
			Khair "	2	14		
			Khair sleepers, narrow-gauge ...	100	133		
		Rungdung ...	Sâl logs	6	180		
		Panchkila ...	Ditto	10	208		
		Panchmai ...	Ditto	10	270		
	Rakti ...	Lama Gumba ...	Ditto	12	369		
		Balasun river ...	Sissu logs, drift	690	4,595		
		Chenga ...	Sâl posts	4	10		
			Sâl sleepers, broad-gauge	9	30		
	Nuksarbari ...	Mechi river ...	Toon logs, drift	65	585	13,039	35,677
Julpigoree ...	Julpigoree ...	Teesta river ...	Sâl logs, drift	37	627		
			Sissu ditto	1	28		
			Sorol ditto	1	22		
		Leesh and Geesh ...	Sâl sleepers, broad-gauge	228	759		
	Alipore ...	Buxa ...	Sâl logs	1,348	32,425		
	Muraghat ...	Muraghat ...	Ditto	9	479	1,624	34,340
Soonderbuns ...	Dumria ...	Soonderbuns ...	Soondri logs	721	7,280	721	7,280
			Total .	.....	.....	15,384	77,297

Form No. 25.

FOREST DEPARTMENT, BENGAL.

Annual Account of Timber for 1875-76.

Particulars.	Timber. Logs.	Sleepers, broad-gauge.	Sleepers, narrow-gauge.	Planks and scantlings.	Kala khambas.	Pieces.	Total.
I.—Stock in hand in the following divisions at commencement of the year.							
Darjeeling Division	1,506	8,016	5,604	384	53	15,563	
Julpigoree "	396	651	.....	83	5	1,135	
	1,902	8,667	5,604	467	58	16,698	16,698
II.—Timber received at depôts from the forests.							
Darjeeling Division	1,256	1,688	9,124	115	856	13,039	
Julpigoree "	1,396	228	.....	.....	.....	1,624	
Soonderbuns "	721	.....	.....	.....	.....	721	
	3,373	1,916	9,124	115	856	15,384	15,384
III.—Timber received by transfer from other depôts.							
Darjeeling Division	209	.....	.....	.....	507	716	
Julpigoree "	62	.....	.....	.....	.....	62	
Total ...	271	.....	.....	.....	507	778	778
Grand total ...	5,546	10,583	14,728	582	1,421	32,860	32,860

Particulars.	Timber. Logs.	Sleepers, broad-gauge.	Sleepers, narrow-gauge.	Planks and scantlings.	Kala khambas.	Pieces.	Total.
I.—Timber removed by purchasers from depôts.							
Darjeeling Division	589	4,815	12,616	172	196	18,388	
Julpigoree "	122	828	.....	.....	.....	950	
Soonderbuns "	455	.....	.....	.....	.....	455	
	1,166	5,643	12,616	172	196	19,793	19,793
II.—Lost or used by department.							
Darjeeling Division	794	.....	.....	1	14	809	
Julpigoree "	.....	.....	.....	.....	1	1	
	794	.....	.....	1	15	810	810
IIa.—Transferred to other depôts.							
Darjeeling Division	209	.....	.....	.....	507	716	
Julpigoree "	62	.....	.....	.....	.....	62	
	271	.....	.....	.....	507	778	778
III.—Stock in hand at close of the year.							
Darjeeling Division	1,379	4,889	2,112	326	699	9,405	
Julpigoree "	1,670	51	.....	83	4	1,808	
Soonderbuns "	266	.....	.....	.....	.....	266	
Total ...	3,315	4,940	2,112	409	703	11,479	11,479
Grand total ...	5,546	10,583	14,728	582	1,421	32,860	32,860

Memorandum of timber lost or used by the Department.

Darjeeling Division.—789 miscellaneous old logs in the Rungbool depôt written off as useless. They were unsaleable.
5 sâl logs, 149 cubic feet, lost from Julpigoree depôt.
1 kala khambas } 9 cubic feet, lost from Shukna depôt.
1 scantling }
13 kala khambas used for repairs to Julpigoree office bungalow
Julpigoree Division — 1 kala khambas used for repairing wheels for Government cart.

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Form No. 26.

FOREST DEPARTMENT, BENGAL.

Statement showing the Amount realized on account of the different classes of Timber sold during the year 1875-76.

Name of Division and Description of Timber.	Number of logs and pieces.	Cubical contents.	Amount realized and due on account of timber sales.	Average amount per log.	Average cubical contents per log.	Average amount per cubic foot.	Remarks.
Darjeeling Division.			Rs. A. P.	Rs. A. P.		Rs. A. P.	
Sál logs...	356	9,596	10,600 6 7	29 12 0	27	1 1 8	
Sissu "	229	1,745	619 6 0	2 11 5	7·6	0 5 8	
Other inferior logs	4	148	33 0 0	8 4 0	37	0 3 8	
Sál kala khambus and posts ...	190	.....	615 8 0	3 2 0	.....	.....	
Sleepers, sál, broad-gauge, 1st class	1,534	5,113	3,451 8 0	2 4 0	3·3	0 10 9	
" " " " 2nd "	932	3,107	1,681 0 0	1 12 0	3·3	0 8 5	
" " " " rejected	2,340	7,830	690 14 0	0 4 9	3·3	0 1 5	Old rejected sleepers sold by public auction.
" " " narrow "	10,591	14,122	18,534 4 0	1 12 0	1·3	1 5 0	
" " " " rejected	1,000	1,334	280 0 0	0 4 5	1·3	0 3 4	
" saj " "	720	960	1,260 0 0	1 12 0	1·3	1 5 0	
" Cholauni, sida, kumbi and khair, narrow-guage ...	305	405	533 12 0	1 12 0	1·3	1 5 0	
Scantlings, sál	166	572	775 6 8	4 10 8	3·4	1 5 8	
" champ	6	2	4 0 0	0 11 0	·3	2 0 0	
	18,388	44,934	39,038 1 3	2 1 11	2·4	0 13 10	
Julpigoree Division.							
Sál logs	122	3,691	4,787 1 9	39 3 9	30·2	1 4 9	
" sleepers, broad-gauge, 1st class	729	2,430	1,640 4 0	2 4 0	3·3	0 10 9	
" " " " 2nd "	80	266	140 0 0	1 12 0	3·3	0 8 5	
" " " " rejected	19	63	15 7 0	0 13 0	3·3	0 3 11	
	950	6,450	6,582 12 9	6 14 10	6·7	1 0 3	
Sunderbuns Division.							
Sunder logs	455	5 16	3,681 7 0	8 1 5	9·92	0 13 0	
	455	4,516	3,681 7 0	8 1 5	9·92	0 13 0	
Total ...	19,793	55,900	49,302 5 0	2 7 10	2·8	0 14 1	

Add balance due on account of previous years	8,248 6 3
Total ...	57,550 11 3
Deduct amount realized and credited during the year	57,074 2 1
Balance remaining unrealized	* 476 9 2

	Rs. A. P.
* Balance remaining unrealized	777 8 0
Excess amount realized, being advance for logs to be taken over	300 14 10
Balance ...	476 9 2

Form No. 27.

FOREST DEPARTMENT, BENGAL.

Statement showing the Amount expended on account of Timber received from the different Forest Divisions during 1875-76.

Divisions.	Number of pieces.	Cubical contents.	Timber expenses.	Conservancy expenses, cost of establishment, &c., excluding direction.	Total amount expended, excluding direction.	Average amount paid per piece.	Average cubical contents per piece.	Average amount paid per cubic foot.	Remarks.
			Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.		Rs. A. P.	
Darjeeling ...	13,039	35,677	12,896 2 9	4,299 0 0	17,195 2 9	1 5 1	2·7	0 7 8	Cost of cattle taken at two-thirtieths, feed and keep of cattle one-half, cost of tools and plant for timber works whole, other charges Rs. 224, and establishment charges one-fourth.
Julpigoree ...	1,624	34,340	13,120 0 8	7,391 0 0	20,511 0 8	12 10 0	21·1	0 9 6	Cost of cattle taken at three-fortieths, feed and keep of cattle two-thirds, tools and plant for timber works whole, other charges Rs. 700, and establishment charges one-third.
Sunderbuns	721	7,280	5,167 9 9	.....	5,167 9 9	7 2 8	10·09	0 11 4	All expenses incurred on account of these logs have been charged to A1 1*a*.
Total ...	15,384	77,297	31,183 13 2	11,690 0 0	42,873 13 2	2 12 7	5·0	0 6 10	
Deduct—Amount not paid during the year.			1,605 12 10						
Total amount shown under A11*a*, form 21.			29,578 0 4						

Revised Form No. 28.

FOREST DEPARTMENT, BENGAL.

Annual Account of Revenue realized in the Forest Department, Bengal, during 1875-76.

Dr. Cr.

RECEIPTS.	Rs. A. P.	Rs. A. P.	DISBURSEMENTS.	Rs. A. P.
Amount of revenue realized in 1875-76		1,98,273 13 9	Amount disbursed in 1875-76	1,39,086 5 11
Deduct—			*Deduct—*	
Amount realized on account of previous periods		*8,197 13 6	Amount disbursed on account of transactions of previous periods...	1,007 9 1
Balance ...		1,90,076 0 3	Balance ...	1,38,078 12 10
Add—			*Add—*	
Outstandings on account of the year	1,847 2 10		Amount due for transactions during the year under review, but not yet disbursed... ...	1,947 5 8
Minus for bad debts		1,847 2 10		
Add—				
Amount deducted from revenue of the year	†11,151 15 3			
Minus amount reducible from revenue of the year	‡9,466 6 11	1,685 8 4		
Value of the year's transactions ...		1,93,608 11 5	Real cost of the year's transactions ...	1,40,026 2 6

	Rs. A. P.
Value of the year's transactions	1,93,608 11 5
Cost ditto ditto	1,40,026 2 6
Balance ...	53,582 8 11
Add—	
Difference between the value of stock at commencement and close of the year	39,329 0 0
Net result of the year ...	92,911 8 11

* Rs. 757-14-0 outstandings on account of last year not yet collected.
† Rs. 11,151-15-3, share of Rajah of Hill Tipperah in the Fenny toll collections for 1874-75, paid during the year under review.
‡ Rs. 9,466-6-11, share of Rajah of Hill Tipperah in the Fenny toll collections for 1875-76, due.

Explanation of difference between the Value of Stock at commencement and close of the year 1875-76.

	Sale value of excess stock at close of the year.	Sum required to replace deficiency at close of the year.	Difference. In favour of the year.	Difference. Against the year.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Darjeeling Division.				
823 logs = 7,220 cubic feet; 2,911 cubic feet, at Re. 1 per cubic foot, and 4,609 cubic feet at annas 8 per cubic foot	4,915 0 0	.....		
950 inferior logs, 36,891 cubic feet, at Rs. 2-7-10 per log	.....	2,367 8 0		
14 sál-sleepers, broad-gauge, at Rs. 1-8 each	21 0 0	.....		
3,141 ditto ditto, 3,105 at Re. 1-8 and 36 at Re. 1-4 each ...	.....	4,702 8 0		
446 sleepers, narrow-gauge (rejected), at annas 4 each	111 8 0	.....		
3,938 ditto ditto at „ 15	.....	3,691 0 0		
646 kala khambas, 625 at Rs. 2-8 and 21 at Rs. 2 each	1,604 8 0	.....		
58 scantlings, 100 cubic feet, at Re. 1 per cubic foot	.....	100 0 0		
Other stock (elephants)	1,836 0 0	.....		
Total Darjeeling Division	8,488 0 0	10,861 0 0	.....	2,373 0 0
Julpigoree Division.				
1,327 logs = 31,566 cubic feet; 29,361 cubic feet at Re. 1; 50 cubic feet at annas 12, and 2,155 cubic feet at annas 8 per cubic foot ...	30,476 0 0	.....		
53 logs, 1,676 cubic feet, at annas 2 per cubic foot	.....	209 8 0		
1 kala khambas	.....	1 8 0		
600 sál sleepers, broad-gauge, at Re. 1-8 each	.....	900 0 0		
Other stock (elephant and a house)	6,455 0 0	.....		
Total Julpigoree Division	36,931 0 0	1,111 0 0	35,820 0 0	....
Palamow Division.				
Other stock (elephant)	1,100 0 0	.....	1,100 0 0	...
Soonderbuns Division.				
266 logs, 2,763 cubic feet, at annas 9 per cubic foot	1,554 6 0	.....		
Other stock (boats)	1,227 10 0	.....		
Total Sunderbuns Division	2,782 0 0	.....	2,782 0 0	.....
Chittagong Division.				
Other stock (elephants)	2,000 0 0	.....	2,000 0 0	.....
Total	... ..	.....	41 702 0 0	2,373 0 0

	Rs.
In favour of the year	41,702
Against the year	2,373
Net difference in favour of the year	39,329

FOREST DEPARTMENT, BENGAL.

Area of Reserved Forests in 1875-76.

Reserved Forests.		Area in 1874-75.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1875-76.	Total for each division.
Darjeeling Division ...	Hill Tracts	75	.....	.....	75	106
	Terai	31	.....	.....	31	
Julpigoree " ...	Muraghat sâl forest	17	.....	.....	17	159
	Dainah sissu "	2	.....	.....	2	
	Buxa plain "	110	.....	.....	110	
	Apalchand "	.....	30	.....	30	
Palamow " ...	Palamow "	.....	151	.....	151	151
Soonderbuns " ...	Soonderbuns "	885	314	.....	1,199	1,199
Chittagong " ...	Maiyani "	339	.....	.....	339	570
	Sitapahar plantation reserve ...	8	.....	.....	8	
	Matamahari forest	.....	223	.....	223	
Singbhoom " ...	Saranda "	.....	400	.....	400	400
	Total ...	1,467	1,118	.....	2,585	2,585

FOREST DEPARTMENT, BENGAL.

Area of Unreserved Forests in 1875-76.

Divisions.	Area in 1874-75.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1875-76.	Remarks.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	
Julpigoree Division ...	214	.....	30	184	These are the areas from which the department derives revenue. The area of the remaining unreserved forests is not known, but it is estimated to amount to some 50,000 square miles, the greater portion of it being private property.
Chittagong " ...	5,323	.....	223	5,100	
Total ...	5,537	.....	253	5,284	

FOREST DEPARTMENT, BENGAL.

Area of Plantations for the year 1875-76.

Name of Plantation.	Area in 1874-75.	Total cost to end of 1874-75.	Area added during 1875-76.	Amount expended during 1875-76.	Total area up to end of 1875-76.	Total expenditure incurred up to end of 1875-76.	Remarks
Darjeeling Division.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Rungbool	144	10,184 10 3	.....	1,039 0 0	144	11,223 10 3	
Bamunpokri	91	13,917 11 10	32	3,643 4 8	123	17,561 0 6	
" India rubber	.....	.....	.....	14 6 0	.....	14 6 0	
" Bamboo...	.....	.....	1	31 11 6	1	31 11 6	
Dhobi Jhora	42	32 0 0	.....	.....	42	32 0 0	
Rangirum Spanish chestnut plantation	1	103 8 0	.....	102 3 6	1	205 11 6	
Sivok India rubber nursery	.....	8 12 0	.....	119 8 6	.....	128 4 6	
Julpigoree Division.							
Fallacotta	3	204 4 11	.....	12 8 0	3	216 12 11	
Chittagong Division.							
Sitapahar	141	5,660 6 11	30	2,098 15 10	171	7,759 6 9	The Holingamarah plantation has been incorporated with the Sitapahar plantation.
Pahartalli	5	324 14 6	.....	.....	5	324 14 6	
Total ...	427	30,436 4 5	63	7,061 10 0	490	37,497 14 5	
Add —							
Amount expended on failures ...	.....	389 8 3	.....	.....	.....	389 8 3	
Ditto on account of other provinces.	.....	.....	.....	110 12 0	.....	110 12 0	
Grand Total	427	30 825 12 8	63	7,172 6 0	490	37,998 2 8	

FOREST DEPARTMENT, BENGAL.

Area of Forest Tracts protected from Fire up to 1875-76.

Forests.	Area in 1874-75.	Total cost.	Additional area protected in 1875-76.	Amount expended in 1875-76.	Total area protected up to 1875-76.	Total expenditure incurred up to 1875-76	Remarks.
Darjeeling Division.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Sivok	1,554	166 1 0	.....	272 15 6	.....	439 0 6	Both forests were burnt in 1875-76.
Julpigoree Division.							
Muraghat	10,920	124 10 0	... ..	135 12 0	.....	260 6 0	
Total ...	12,474	290 11 0	.....	408 11. 6	.....	699 6 6	

FOREST DEPARTMENT, BENGAL.

Prosecutions for Breaches of Forest Rules during 1875-76.

Divisions.	No. of Prosecutions.		Convictions obtained or still pending.			
	Number of cases.	Number of persons.	Number of cases.		Number of persons.	
			Convictions.	Pending.	Convicted.	Under trial.
Darjeeling Division	13	15	10	.....	12	.....
Julpigoree "	3	26	3	.....	8	.....
Soonderbuns "	7	22	6	1	18	4
Chittagong "	7	10	3	.....	3	.....
Total ...	30	73	22	1	41	4

APPENDIX A.

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubit.	1 & 2	2 & 3
Acres 14,455; square miles 22·34.	**Block 1**, *situated in Tuppeh Barasand.*					Acres.					
	North.—The boundary between Turer and Latoo mouzahs until reaching the Latoo river; down same, until where it begins to flow north; then a demarcated line running from the latter point to the Borhee nuddy in a south-eastwardly direction; then up the Borhee nuddy until reaching the boundary between Koojrum and Basee-chumpa mouzahs; from here it runs east along the boundary between these two mouzahs; then a demarcated line running first south-east and then east on to the Lat-Barasand road. *East.*—The Lat-Barasand road until reaching the river forming the boundary between Barasand and Dedigaun mouzahs; then for a short distance, about one mile down the river; then a demarcated line running in a southerly direction until reaching the Paharkoocha nuddy; then east up the river until a short distance east of the Lat-Barasand road; from here south along the Lat-Barasand road until reaching the boundary between Ramseelee and Chetmah mouzahs. *South.*—The boundary between Ramseelee and Chetma mouzahs until reaching the Borhee nuddy; down same until its junction with the Chorhoo nuddy; then up the Chorhoo nuddy to the boundary between Palamow and Sirgoojah State. *West.*—The boundary between Palamow and Sirgoojah State.	The southern portion consists principally of *sál*, none of which is of any great size; the northern portion contains some good trees, principally *persar* and *then*. The *sál* is found all through this large area. This block is rich in bamboos in the northern part, but poor in the southern.	Boorwa nuddy and Koel river.	No actual villages, but merely a few squatters here and there.	25	252	1·74	Asan ...	86,886	17,175	5,946
								Gamhar ...	4,979	3,551	637
								Garso ...	114	114	114
								Ginyan ...	13,050	5,669	1,488
								Jamun ...	.....	.....	.....
								Jamti ...	7,158	3,998	2,464
								Khaua ...	57	.....	114
								Karam ...	4,675	1,430	860
								Khair ...	71,732	974	171
								Kumbi ...	573	171	.....
								Kusum ...	8,227	3,200	1,318
								Mahwa ...	17,320	7,504	4,685
								Paras ...	1,775	171	171
								Persar ...	17,421	8,227	5,665
								Sakwa ...	409,216	25,835	6,307
								Seeda ...	9,237	4,139	286
								Dowta ...	156,453	30,742	6,408
								Then ...	66,680	9,716	1,318
								Sissu ...	5,956	1,374	286
								Total ...	941,418	123,987	38,238
Acres 11,243; square miles 17·51.	**Block 2**, *situated in Tuppeh Barasand.*										
	North.—The portion of the Koel river between the Hurce and Hulhud mouzahs. *East.*—The boundary between Barasand and Seemah tuppehs; then the boundary between Barasand and Cheeharee tuppehs. *West.*—A demarcated line running first about 1¼ mile north, then ½ a mile north-east, and then 1¼ mile north-west, until reaching the boundary between Paharkoocha and Myapoor mouzahs; then north along the Paharkoocha and Myapoor boundary until reaching the boundary between Myapoor and Barasand; then a demarcated line running north-west, until reaching the Tenoo mouzah boundary; then north-east along the boundary between Barasand and Tenoo mouzahs for about two miles; then nearly due west until reaching the Tenoo river; down same until reaching the boundary between Gungtur and Tenoo mouzahs; then along the boundary between Gungtur and Hulhud for about half a mile; and then a demarcated line running in a general north-east direction until reaching a small nuddy which there forms the boundary to the Koel river.	That portion of the block lying in the Paharkoocha mouzah contains some very fine *sál* timber. This block is rich in bamboos all through.	Barasand road and Koel river.	Lubga in Barasand mouzah, besides squatters scattered through the block.	22 30	194	1·72	Asan ...	35,236	12,113	6,201
								Gamhar ...	1,795	2,434	637
								Garso ...	637	1,274	690
								Ginyan ...	1,686	5,100	928
								Jamun ...	174	58	.....
								Jamti ...	2,610	2,203	1,102
								Khaua ...	58	...	.....
								Karam ...	4,459	1,102	522
								Khair ...	64,676	1,911	232
								Kumbi ...	464	348	.....
								Kusum ...	7,881	2,724	1,218
								Mahwa ...	1,274	1,302	522
								Paras ...	4,289	928	174
								Persar ...	15,125	78,251	3,766
								Sakwa ...	117,035	23,766	11,895
								Seeda ...	5,528	5,037	579
								Dowta ...	63,748	18,258	5,100
								Then ...	31,413	2,897	579
								Sissu ...	10,951	2,550	522
								Total ...	369,039	162,336	34,583
Acres 7,300; square miles 11·41.	**Block 3**, *situated in Tuppeh Seemah.*										
	North.—The boundary between Sooceyahkhar and Maromand mouzahs; then the boundary between Datrum and Maromand mouzahs; then runs north along the boundary between Kudlut and Maromand; and then along the boundary between Kudlut and Urman mouzahs. *East.*—The boundary between Kudlut and Holook; and then along the boundary between Kudlut and Surum; then the boundary between Datrum and Dareechapur; then the boundary between Datrum and Jaigir; then a demarcated line running north-west to the boundary of the Datrum and Sooceyahkhar mouzahs; then runs south along the boundary between Sooceyahkhar and Karee, and Sooceyahkhar and Bigatola mouzahs. *South.*—The boundary between Seemah and Chicharee tuppehs. *West.*—The boundary between Seemah and Barasand tuppehs.	In the southern portion there is some fine timber. This block is rich in bamboos all through.	The Koel river.	None ...	None	75	1·03	Asan ...	53,947	8,030	2,366
								Gamhar ...	1,606	1,022	146
								Garso ...	146	182	73
								Ginyan ...	3,869	949	219
								Jamun ...	102	88	29
								Jamti ...	4,307	3,577	2,044
								Khaua ...	22	15	15
								Karam ...	1,387	803	365
								Khair ...	44,311	511	73
								Kumbi ...	219	109	73
								Kusum ...	3,189	1,604	876
								Mahwa ...	11,169	4,964	2,263
								Paras ...	2,993	657	146
								Persar ...	6,570	4,745	2,117
								Sakwa ...	314,192	9,125	3,504
								Seeda ...	36,281	1,898	292
								Dowta ...	85,629	15,914	2,701
								Then ...	43,289	4,818	584
								Sissu ...	4,015	1,168	292
								Total ...	617,193	60,179	18,178

Forests in the Palamow Forest Division.

CONTENTS OF BLOCK.

Total amount of material in block.								Total.	Total amount of material per acre.											Total.
Between									Under one cubit.	Between										
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.									Cubits.											
274	515	57	...	...	...	...	...	110,853	0·02	1·19	0·41	0·19	0·04	0·004	.....	.....	.....	.....	.....	7·854
57	.....	.....	...	...	...	...	...	9,274	0·34	0·25	0·05	0·004	.....	.....	.....	.....	.....	.....	.....	0·644
57	114	.....	...	...	...	...	...	513	0·008	0·008	0·008	0·004	0·008	.....	.....	.....	.....	.....	.....	0·036
573	114	.....	...	...	...	...	...	20,903	0·90	0·39	0·10	0·04	0·008	.....	.....	.....	.....	.....	.....	1·488
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,030	.....	.....	...	...	...	...	...	14,650	0·50	0·28	0·17	0·07	.....	.....	.....	.....	.....	.....	.....	1·02
.....	.....	.....	...	...	57	...	...	228	0·004	.....	0·008	.....	.....	.....	.....	.....	0·004	.....	.....	0·016
171	229	171	...	...	...	...	...	7,436	0·31	0·09	0·06	0·01	0·02	0·01	.....	.....	.....	.....	.....	0·50
.....	.....	.....	...	...	...	...	...	72,877	4·97	0·07	0·01	.....	.....	.....	.....	.....	.....	.....	.....	5·05
.....	.....	.....	...	...	...	...	...	744	0·04	0·01	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·05
515	114	.....	...	...	...	...	...	13,380	0·57	0·22	0·09	0·04	0·008	.....	.....	.....	.....	.....	.....	0·924
1,430	400	57	...	...	...	57	...	31,403	1·20	0·51	0·34	0·10	0·03	0·004	.....	.....	.....	0·004	.....	2·208
.....	.....	.....	...	...	...	...	...	2,117	0·12	0·01	0·01	.....	.....	.....	.....	.....	.....	.....	.....	0·14
4,490	1,261	229	57	...	...	...	...	37,350	1·20	0·60	0·40	0·30	0·09	0·02	0·004	.....	.....	.....	.....	2·614
2,800	400	57	57	...	57	...	...	504,729	32·51	1·80	0·43	0·20	0·03	0·004	0·004	.....	0·004	.....	.....	34·982
57	.....	.....	...	...	...	...	...	13,710	0·04	0·35	0·02	0·004	.....	.....	.....	.....	.....	.....	.....	0·414
1,545	171	.....	...	...	...	...	...	195,319	10·84	2·13	0·44	0·10	0·01	.....	.....	.....	.....	.....	.....	13·52
515	57	.....	...	...	...	...	...	78,236	4·62	0·07	0·09	0·04	0·004	.....	.....	.....	.....	.....	.....	5·424
.....	.....	.....	...	...	...	...	...	7,616	0·31	0·09	0·02	.....	.....	.....	.....	.....	.....	.....	.....	0·42
13,514	3,375	571	114	...	114	57	...	1,121,388	70·502	8·068	2·076	1·102	0·248	0·042	0·008	.....	0·008	0·004	.....	83·258
4,752	2,087	290	...	...	...	...	...	60,679	3·13	1·08	0·55	0·42	0·19	0·03	.....	.....	.....	.....	.....	5·40
58	.....	.....	...	...	...	...	...	4,924	0·16	0·22	0·06	0·005	.....	.....	.....	.....	.....	.....	.....	0·445
637	174	58	...	...	...	...	...	3,476	0·05	0·11	0·06	0·06	0·02	0·005	.....	.....	.....	.....	.....	0·305
232	174	.....	...	...	...	...	...	8,120	1·50	0·45	0·08	0·02	0·02	.....	.....	.....	.....	.....	.....	2·07
.....	.....	.....	...	...	...	...	...	232	0·02	0·005	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·025
290	58	.....	...	...	...	...	...	6,203	0·23	0·19	1·10	0·03	0·005	.....	.....	.....	.....	.....	.....	0·555
.....	.....	.....	...	...	...	...	...	58	0·005	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·005
290	116	58	...	...	...	...	...	6,547	0·39	0·10	0·05	0·03	0·01	0·005	.....	.....	.....	.....	.....	0·585
.....	.....	.....	...	...	...	...	...	66,819	5·75	0·17	0·02	.....	.....	.....	.....	.....	.....	.....	.....	5·94
.....	.....	.....	...	...	...	...	...	812	0·04	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·07
753	232	.....	...	...	...	...	...	12,806	0·70	0·24	0·11	0·07	0·02	.....	.....	.....	.....	.....	.....	1·14
406	58	58	58	...	...	...	...	3,768	0·11	0·12	0·05	0·04	0·005	0·005	0·005	.....	.....	.....	.....	0·355
58	58	.....	...	...	...	...	...	5,507	0·38	0·08	0·02	0·005	0·005	.....	.....	.....	.....	.....	.....	0·490
3,069	1,075	232	...	...	...	...	...	102,118	1·35	6·96	0·33	0·27	0·15	0·02	.....	.....	.....	.....	.....	9·08
8,747	3,679	1,044	174	116	...	...	...	166,556	19·80	2·11	1·05	0·78	0·34	0·09	0·02	0·01	.....	.....	.....	23·70
116	.....	.....	...	...	...	...	...	11,200	0·49	0·45	0·05	0·01	.....	.....	.....	.....	.....	.....	.....	1·00
2,372	290	.....	...	...	...	...	...	89,768	5·67	1·62	0·45	0·21	0·03	.....	.....	.....	.....	.....	.....	7·98
232	58	.....	...	...	...	...	...	35,179	2·79	2·58	0·05	0·02	0·005	.....	.....	.....	.....	.....	.....	5·445
348	.....	.....	...	...	...	...	...	14,371	0·97	0·23	0·05	0·03	.....	.....	.....	.....	.....	.....	.....	1·28
22,360	8,850	1,740	232	116	...	...	...	599,265	43·035	16·745	3·08	2·000	0·800	0·155	0·025	0·01	.....	.....	.....	65·850
1,095	305	146	...	...	...	...	...	65,949	7·39	1·10	0·32	0·15	0·05	0·02	.....	.....	.....	.....	.....	9·03
44	.....	.....	...	...	...	...	...	2,818	0·22	0·14	0·02	0·006	.....	.....	.....	.....	.....	.....	.....	0·386
44	.....	.....	...	...	...	...	...	445	0·02	0·025	0·01	0·006	.....	.....	.....	.....	.....	.....	.....	0·061
219	51	29	...	...	...	...	...	5,336	0·53	0·13	0·03	0·03	0·007	0·004	.....	.....	.....	.....	.....	0·731
7	22	22	...	...	...	...	...	270	0·014	0·012	0·004	0·001	0·003	0·003	.....	.....	.....	.....	.....	0·037
708	109	.....	...	...	...	...	...	10,745	0·59	0·49	0·28	0·067	0·015	.....	.....	.....	.....	.....	.....	1·472
15	.....	.....	...	...	...	...	...	67	0·003	0·002	0·002	0·002	.....	.....	.....	.....	.....	.....	.....	0·009
182	73	43	...	...	...	...	...	2,853	0·19	0·11	0·05	0·025	0·01	0·006	.....	.....	.....	.....	.....	0·301
.....	.....	.....	...	...	...	...	...	44,895	6·07	0·07	0·01	.....	.....	.....	.....	.....	.....	.....	.....	6·15
.....	.....	.....	...	...	...	...	...	401	0·03	0·015	0·01	.....	.....	.....	.....	.....	.....	.....	.....	0·055
438	219	7	...	...	...	...	...	6,283	0·43	0·22	0·12	0·06	0·03	0·001	.....	.....	.....	.....	.....	0·861
949	292	15	...	...	...	...	...	19,552	1·53	0·68	0·31	0·13	0·04	0·002	.....	.....	.....	.....	.....	2·692
73	.....	.....	...	...	...	...	...	3,869	0·41	0·09	0·02	0·01	.....	.....	.....	.....	.....	.....	.....	0·53
1,460	511	73	7	...	...	...	...	15,483	0·90	0·65	0·29	0·20	0·07	0·01	0·001	.....	.....	.....	.....	2·131
1,460	584	73	73	23	...	...	...	329,033	43·04	1·25	0·48	0·20	0·08	0·01	0·01	0·003	.....	.....	.....	45·073
36	.....	.....	...	...	...	...	...	38,507	4·97	0·26	0·04	0·005	.....	.....	.....	.....	.....	.....	.....	5·275
657	36	.....	...	...	...	...	...	104,937	11·73	2·18	0·37	0·09	0·005	.....	.....	.....	.....	.....	.....	14·375
292	29	.....	...	...	...	...	...	49,012	5·93	0·66	0·08	0·04	0·004	.....	.....	.....	.....	.....	.....	6·714
73	.....	.....	...	...	...	...	...	5,548	0·55	0·16	0·04	0·01	.....	.....	.....	.....	.....	.....	.....	0·76
7,752	2,291	408	80	22		..		706,103	84·547	8·244	2·488	1·062	0·314	0·056	0·011	0·003	.....	.....	.....	96·728

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubit.	1 & 2	2 & 3
Acres 8,203; square miles 12·81.	**Block 4, *situated in Tuppeh Seemah.***					Acres.					
	North.—The boundary between the Kanteh and Bareedohur mouzahs; then a demarcated line running south until reaching the boundary between Kanteh and Bookkikona; then south-east along the boundary between Kanteh and Bookkikona, until reaching the boundary between Kanteh and Gadeetam; then north-east along the boundary between Gadeetam and Toreedag; from here south-west along the boundary between Gadeetam and Bareeato; then south-east along the boundary between Pindra and Bareeato; then *East.*—South along the boundary between Pindra and Bareeato; then south-west along the boundary between Pindra and Ghootowa; then north along a demarcated line for about 1½ miles; then west along a demarcated line until reaching the Nowatolah boundary; then along the boundary between Nowatolah and Pindra for about 1½ miles; then south along a demarcated line on to the Neturhaut boundary; then south-east along the Neturhaut boundary until reaching the Burwah boundary. *South.*—A demarcated line running south-west until reaching the Chicharee boundary. *West.*—The boundary between Seemah and Chicharee; then along the boundary between Gadeetam and Bookkikona (first north-east then south-east); then a demarcated line running north to the Kanteh boundary; and finally west along the boundary between Bookkikona and Kanteh.	This block consists principally of *sál*, some of which is of fair proportional demensions; moderately rich in places in bamboos.	The Koel river.	None ...	None	91	1·11	Asan ... Gamhar ... Garso ... Ginyan ... Jamun ... Jamti ... Khaua ... Karam ... Khair ... Kumbi ... Kusum ... Mahwa ... Paras ... Persar ... Sakwa ... Seeda ... Dowta ... Then ... Sissu ... Total ...	37,474 2,050 2,375 9,840 ..... 3,034 246 2,952 43,852 410 4,756 5,002 3,280 8,774 316,274 26,732 66,748 29,028 5,494 568,321	9,266 1,886 410 3,444 ..... 1,968 ..... 902 984 246 1,968 2,542 820 30,586 16,072 3,116 15,088 12,628 1,312 103,238	3,936 410 168 738 ..... 5,166 ..... 328 84 ..... 820 1,722 164 3,034 5,904 246 3,854 492 246 27,312
Acres 805; square miles 1·26.	**Block 5, *situated in Tuppeh Seemah.***										
	North.—The boundary between Hoorhoorkurcha and Bijalpoor. *East.*—The Koel river. *South.*—The Koel river. *West.*—A demarcated line running north from the Koel river to the boundary between Hoorhoorkurcha and Bijalpore.	Contents chiefly *sál*: poor in bamboos.	The Koel river.	None ...	None	15	1·87	Asan ... Gamhar ... Garso ... Ginyan ... Jamun ... Jamti ... Khaua ... Karam ... Khair ... Kumbi ... Kusum ... Mahwa ... Paras ... Persar ... Sakwa ... Seeda ... Dowta ... Then ... Sissu ... Total ...	8,855 40 ..... 225 ..... 741 ..... 24 7,446 16 40 96 89 411 40,218 4,301 939 2,420 56 65,996	805 588 612 72 ..... 409 .... 137 ..... 105 32 97 258 3,220 80 845 48 7,398	193 ..... 16 8 ..... 290 .... 8 8 97 56 8 161 1,240 8 137 8 16 2,254
Acres 626; square miles 0·98.	**Block 6, *situated in Tuppeh Seemah.***										
	North.—The river forming the boundary between Seemah and Chanpee mouzahs. *East.*—The Koel river. *South.*—The boundary between the Chanpee and Rood mouzahs. *West.*—The Seemah-Gungtur road.	This block consists principally of young *sál*, some of which is of fair dimensions; poor as regards bamboos.	The Koel river.	One house ...	1	34	5·43	Asan ... Gamhar ... Garso ... Ginyan ... Jamun ... Jamti ... Khaua ... Karam ... Khair ... Kumbi ... Kusum ... Mahwa ... Paras ... Persar ... Sakwa ... Seeda ... Dowta ... Then ... Sissu ... Total ...	6,648 37 ..... 202 ..... 441 ..... 55 3,737 37 74 129 184 202 27,838 2,830 7,900 1,233 51,558	736 92 37 55 ..... 388 .... 129 ..... 74 18 148 220 3,794 55 809 74 6,629	74 ..... 18 .... 220 .... 18 .... 55 ..... 165 1,320 ..... 74 18 1,902

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block.								Total.	Total amount of material per acre.											Total.
Between									Under one cubit.	Between										
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.										Cubits.										
2,460	902	139	...	...	...	...	...	54,177	4·57	1·13	0·48	0·30	0·11	0·017	.....	.....	.....	.....	.....	6·607
.....	.....	.....	...	...	...	...	...	4,346	0·25	0·23	0·05	.....	.....	.....	.....	.....	.....	.....	.....	0·53
168	.....	.....	...	...	...	...	...	3,121	0·29	0·05	0·02	0·02	.....	.....	.....	.....	.....	.....	.....	0·38
246	84	.....	...	...	...	...	...	14,352	1·20	0·42	0·09	0·03	0·01	.....	.....	.....	.....	.....	.....	1·75
.....	.....	.....	...	...	...	...	...	.....	.....	..	.. ..	.....	.....	.....	.....	.....	.....	.....	.....	.....
410	.....	.....	...	...	...	...	...	10,578	0·37	0·24	0·63	0·05	.....	.....	.....	.....	.....	.....	.....	1·29
.....	.....	.....	...	...	...	...	...	246	0·03	.....	.. ...	. .	.....	.....	.....	.....	.....	.....	.....	0·03
108	84	.....	...	...	...	...	...	4,434	0·36	0·11	0·04	0·02	0·01	.....	.....	.....	.....	.....	.....	0·54
.....	.....	.....	...	...	...	...	...	44,920	5·36	0·12	0·01	.....	.....	.....	.....	.....	.....	.....	.....	5·49
.....	.....	.....	...	...	...	...	...	856	0·05	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·08
410	82	.....	...	...	...	...	...	8,036	0·58	0·24	0·10	0·05	0·01	.....	.....	.....	.....	.....	.....	0·98
574	82	.....	...	...	...	...	...	9,922	0·61	0·31	0·21	0·07	0·01	.....	.....	.....	.....	.....	.....	1·21
.....	.....	.....	...	...	...	...	...	4,264	0·40	0·10	0·02	.....	.. ...	.....	.....	.....	.....	.....	.....	0·52
2,296	984	164	...	...	...	...	...	45,838	1·07	3·73	0·37	0·28	0·12	0·02	... ..	.....	.....	.....	.....	5·59
3,936	1,476	328	82	...	...	...	...	344,072	38·57	1·96	0·72	0·48	0·18	0·04	0·01	.....	.....	.....	.....	41·96
24	.....	....	...	...	...	...	...	30,118	3·26	0·38	0·03	0·005	... ..	.....	.....	.....	.....	.....	.....	3·673
1,230	82	.....	...	...	...	...	...	87,002	8·14	1·84	0·47	0·15	0·01	.....	.....	.....	.....	.....	.....	10·61
246	.....	... ..	..	...	...	...	...	42,394	3·54	1·84	0·06	0·03	.....	.....	.....	.....	.....	.....	.....	5·17
.....	.....	.....	...	...	...	...	...	7,052	0·67	0·16	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·86
12,168	3,776	631	82	..	...	...	...	715,528	69·32	12·59	3·23	1·483	0·46	0·077	0·01	.....	.....	.....	.....	87·270
72	48	.....	...	...	...	...	...	9,073	11·18	1·16	0·24	0·09	0·06	.....	.....	.....	.....	.....	.....	12·73
16	.....	.....	...	...	...	...	...	644	0·05	0·73	.. .	0·02	. ..	.....	.....	.....	.....	.....	.....	0·80
16	8	.....	...	...	...	...	...	652	.. ...	0·76	0·02	0·02	0·01	.....	.....	.....	.....	.....	.....	0·81
16	8	169	8	...	...	...	...	506	0·28	0·09	0·01	0·02	0·01	0·21	0·01	.....	.....	.....	.....	0·63
.....	.....	.....	...	...	...	...	...	.....	.	..	... .	... ..	.....	.....	.....	.....	.....	.....	.....	.....
48	. ....	.....	...	...	...	...	...	1,578	0·22	0·62	0·36	0·06	.....	.....	.....	.....	.....	.....	.....	1·96
.....	.....	.....	...	...	...	...	...	... .	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	24	0·03	.....	.. ...	.....	.....	.....	.....	.....	.....	.....	.....	0·03
.....	16	.....	...	...	...	...	...	7,607	9·25	0·17	0·01	.....	0·02	.....	.....	.....	.....	.....	.....	9·45
.....	.....	.....	...	...	...	...	...	24	0·02	.....	0·01	... ..	.....	.....	.....	.. ...	.....	.....	.....	0·03
48	24	8	...	...	...	...	...	822	0·95	0·13	0·12	0·06	0·03	0·01	.....	.....	.....	.....	.....	2·40
24	24	.....	...	...	...	.	...	232	0·12	0·04	0·07	0·03	0·03	.....	.....	.....	.....	.....	.....	0·29
16	.....	.....	...	...	...	..	...	210	0·11	0·12	0·01	0·02	... .	.....	.....	.....	.....	.....	.....	0·26
97	56	16	...	...	...	...	...	990	0·51	0·32	0·20	0·12	0·07	0·02	.....	.....	.....	.....	.....	1·24
386	250	32	8	...	8	...	...	45,362	49·26	4·00	1·54	0·48	0·31	0·04	0 01	.....	0·01	.....	.....	56·35
.....	.....	.....	...	...	...	...	...	4,389	5·35	0·10	0·01	.. . .	.....	.....	.....	.....	.....	... ..	.....	5·46
64	.....	.....	...	...	...	...	...	1,985	11·05	1·05	0·17	0·08	.....	.....	.....	.....	.....	.....	.....	12·35
.....	... .	.....	...	...	...	...	..	2,485	3·08	0·06	0·01	.....	.... .	.....	.....	.....	.....	.....	.....	3·10
.....	.....	.....	...	...	...	...	...	72	0·07	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·09
803	434	225	16	...	8	...	...	77,064	91·98	9·37	2·78	1·00	0·54	0·28	0·02	.....	0·01	.....	.....	105·98
18	18	.....	...	...	...	...	...	7,494	10·62	1·18	0·12	0·03	0·03	.....	.....	.....	.....	.....	.....	11·98
.....	.....	.....	..	...	...	...	...	129	0·06	0·15	. . .	.....	.... .	.. .	.....	.....	.....	.....	.....	0·21
.....	18	.....	...	...	...	...	...	73	.....	0·059	0·03	.....	0·03	.....	.. ...	.....	.....	.....	.....	0·119
37	18	18	18	...	...	...	...	348	0·32	0·09	.....	0·06	0·03	0·03	0 03	.....	.....	.....	.....	0·56
.....	.....	.....	...	...	...	...	...	... ..	.....	.....	... .	.....	.....	.....	.. ...	.	.....	.....	.....	.....
18	.....	.....	...	...	...	...	...	1,067	0·70	0·62	0·35	0·03	.....	.....	.....	.....	.....	.....	.....	1·70
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	55	0·09	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·09
.....	.....	.....	...	...	...	...	...	3,884	5·97	0·21	0·03	.....	.....	.....	.....	.....	.....	.....	.....	6·21
.....	.....	.....	...	...	...	...	...	37	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·06
18	18	.....	...	...	...	...	...	184	0·12	0·12	.....	0·03	0·03	.....	.....	.....	.....	.....	.....	0·30
18	18	...	...	...	...	...	...	238	0·21	0·03	0·09	0·03	0 03	.. ...	.....	.....	.....	.....	.....	0·39
.....	...	... ..	...	...			...	352	0·29	0·23	.....	.....	.. .	.....	.....	.....	.....	.....	.....	0·52
74	92	... .	...	...	.	...	...	753	0·32	0·35	0·26	0·12	0·15	.....	.....	.....	.....	.....	.....	1·20
258	129	18	...	...	18	...	...	33,375	44·47	6·06	2·12	0·41	0·21	0·03	.....	.....	0·03	.....	.....	53·33
.....	.....	.....	...	...		...	...	2,891	4·53	0 09	.....	.. ...	.....	.....	.....	.....	.....	.....	.....	4·62
18	. ....	.....	...	...	...	...	...	8,801	12·62	1·29	0·12	0·03	.....	.....	.....	... ..	.....	.....	.....	14·06
.....	.....	...	.	...	...	...	...	1,325	1·97	0·12	0·03	.....	.....	.....	.....	.....	.....	.....	.....	2·12
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
459	311	36	18	...	18	...	...	60,986	82·35	10·590	3·15	0·74	0·51	0·06	0·03	.....	0·03	.....	.....	97·4 69

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubit.	1 & 2	2 & 3
Acres 692; square miles 1·08.	**Block 7**, *situated in Tuppeh Seemah.*					Acres.					
	North.—The boundary between Sulweh and Hoordag mouzahs. *East.*—The Koel river. *South.*—The Koel river; then a demarcated line running in a westwardly direction until reaching the Sulweh river. *West.*—A demarcated line running from the Sulweh river to the road where the boundary between Hoordag and Sulweh mouzahs cuts it.	Contents chiefly *sál*, with some good trees; poor in bamboos.	The Koel river.	None ...	None	29	4·2	Asan ...	7,206	644	167
								Gamhar ...	72	48	.....
								Garso ...	.....	119	24
								Ginyan ...	286	48	24
								Jamun ...	.....	.....	.....
								Jamti ...	477	429	429
								Khaua ...	.....	.....	.....
								Karam ...	.....	.....	.....
								Khair ...	8,590	72	.....
								Kumbi ...	.....	.....	24
								Kusum ...	24	48	119
								Mahwa ...	96	72	48
								Paras ...	24	48	24
								Persar ...	406	334	192
								Sakwa ...	33,069	1,599	907
								Seeda ...	4,512	144	24
								Dowta ...	9,927	965	144
								Then ...	1,095	.....	.....
								Sissu ...	144	48	.....
								Total ...	67,128	4,618	2,126
Acres 421; square miles 0·66.	**Block 8**, *situated in Tuppeh Seemah.*										
	North.—The Koel river. *East.*—A demarcated line running south-east from the Koel to the Chouput nuddy; then south till it meets the Koel. *South.*—The Koel river. *West.*—The Koel river.	A very well stocked *sál* forest, with some good trees; poor in bamboos.	The Koel river and Sulweh road.	None ...	None	16	3·8	Asan ...	5,262	579	158
								Gamhar ...	.....	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	53	53	.....
								Jamun ...	.....	.....	.....
								Jamti ...	579	263	53
								Khaua ...	.....	.....	.....
								Karam ...	.....	.....	.....
								Khair ...	3,974	79	.....
								Kumbi ...	.....	.....	.....
								Kusum ...	.....	79	79
								Mahwa ...	.....	26	.....
								Paras ...	447	158	105
								Persar ...	263	53	26
								Sakwa ...	23,892	1,527	501
								Seeda ...	2,105	.....	.....
								Dowta ...	2,606	210	79
								Then ...	1,973	26	.....
								Sissu ...	.....	.....	.....
								Total ...	41,154	3,053	1,001
Acres 405; square miles 0·63.	**Block 9**, *situated in Tuppeh Seemah.*										
	North.—The boundary between the Kaseegudha and Lale mouzahs. *East.*—Ditto ditto ditto. *South.*—The boundary between Kaseegudha and Kasmar. *West.*—The river forming the boundary between Kaseegudha and Bindwa, and then the boundary between Kaseegudha and Chorha.	Chiefly a young *sál* forest broken by several patches of cultivation; contains little mature timber; poor in bamboos.	The Koel river.	None ...	None	27	6·66	Asan ...	2,264	705	150
								Gamhar ...	.....	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	45	15	.....
								Jamun ...	.....	.....	.....
								Jamti ...	240	330	180
								Khaua ...	.....	.....	.....
								Karam ...	.....	15	15
								Khair ...	1,142	45	.....
								Kumbi ...	.....	45	.....
								Kusum ...	45	15	90
								Mahwa ...	75	105	.....
								Paras ...	.....	45	.....
								Persar ...	60	105	105
								Sakwa ...	14,358	525	90
								Seeda ...	210	75	15
								Dowta ...	2,908	494	60
								Then ...	300	15	.....
								Sissu ...	30	60	15
								Total ...	21,672	2,594	720
Acres 907; square miles 1·42.	**Block 10**, *situated in Tuppeh Seemah.*										
	North.—The boundary between the Gotag and Surjoo mouzahs. *East.*—The boundary between the Gotag and Bulbul mouzahs; then a demarcated line running a short distance west from the Gotag-Bulbul boundary to the Gotag-Pehlaputhul mouzahs; then along the boundary of the Pehlaputhul and Gotag mouzahs until reaching the Chouput river. *South.*—The Chouput river.	Consists principally of *sál*, some of which is of fair dimensions; poor in bamboos.	Chouput nuddy.	None ...	None	30	3·26	Asan ...	5,411	1,118	121
								Gamhar ...	121	60	.....
								Garso ...	.....	.....	.....
								Ginyan ...	181	90	.....
								Jamun ...	.....	.....	.....
								Jamti ...	513	816	181
								Khaua ...	.....	.....	.....
								Karam ...	30	60	60
								Khair ...	.....	.....	.....
								Kumbi ...	.....	.....	.....
								Kusum ...	695	60	30

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block.								Total.	Total amount of material per acre.											Total.
Between									Under one cubit.	Between										
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.										Cubits.										
96	96	.....	...	...	...	...	...	8,209	10·41	0·93	0·24	0·14	0·14	.....	.....	.....	.....	.....	.....	11·86
.....	.....	.....	...	...	...	...	...	120	0·10	0·069	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·169
48	.....	.....	...	...	...	...	...	191	.....	0·17	0·03	0·07	.....	.....	.....	.....	.....	.....	.....	0·27
.....	.....	.....	...	...	...	...	...	358	0·414	0·07	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·514
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
118	.....	.....	...	...	...	...	...	1,453	0·69	0·62	0·62	0·17	.....	.....	.....	.....	.....	.....	.....	2·10
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	48	.....	...	...	...	...	...	8,710	12·41	0·10	...	.....	0·07	.....	.....	.....	.....	.....	.....	12·58
.....	.....	.....	...	...	...	...	...	24	.....	.....	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·03
24	48	24	...	...	...	...	...	287	0·03	0·07	0·17	0·03	0·07	0·03	.....	.....	.....	.....	.....	0·40
48	.....	.....	...	...	...	...	...	260	0·14	0·10	0·07	0·07	.....	.....	.....	.....	.....	.....	.....	0·38
.....	.....	.....	...	...	...	...	...	96	0·03	0·07	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·13
119	.....	.....	...	...	...	...	...	1,051	0·59	0·48	0·28	0·17	.....	.....	.....	.....	.....	.....	.....	1·52
357	167	72	24	...	...	...	...	36,795	48·65	2·31	1·31	0·52	0·24	0·10	0·03	.....	.....	.....	.....	53·16
.....	.....	.....	...	...	...	...	...	4,680	6·52	0·21	0·03	.....	.....	.....	.....	.....	.....	.....	.....	6·76
96	.....	.....	...	...	...	...	...	11,132	14·34	1·37	0·21	0·14	.....	.....	.....	.....	.....	.....	.....	16·06
.....	.....	.....	...	...	...	...	...	1,095	2·45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2·45
.....	.....	.....	...	...	...	...	...	192	0·21	0·07	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·28
906	359	96	24	...	...	...	...	75,257	96·989	6·639	3·05	1·31	0·52	0·13	0·03	.....	.....	.....	.....	108·668
53	.....	.....	...	...	...	...	...	6,052	12·50	1·37	0·37	0·12	.....	.....	.....	.....	.....	.....	.....	14·36
26	.....	.....	...	...	...	...	...	26	.....	.....	.....	0·06	.....	.....	.....	.....	.....	.....	.....	0·06
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	.....	26	...	...	...	...	...	185	0·12	0·12	.....	0·12	.....	0·06	.....	.....	.....	.....	.....	0·42
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	895	1·37	0·62	0·12	.....	.....	.....	.....	.....	.....	.....	.....	2·11
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	26	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·06	0·06
.....	.....	.....	...	...	...	...	...	4,053	9·37	0·19	.....	.....	.....	.....	.....	.....	.....	.....	.....	9·56
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	.....	.....	...	...	...	...	...	211	.....	0·19	0·19	0·12	.....	.....	.....	.....	.....	.....	.....	0·50
26	.....	.....	...	...	...	...	...	52	.....	0·06	.....	0·06	.....	.....	.....	.....	.....	.....	.....	0·12
.....	.....	.....	...	...	...	...	...	710	1·06	0·37	0·25	.....	.....	.....	.....	.....	.....	.....	.....	1·68
26	26	26	...	...	...	...	...	420	0·62	0·12	0·06	0·06	0·06	0·06	.....	.....	.....	.....	.....	0·98
210	79	.....	...	...	...	...	...	26,209	56·75	3·62	1·19	0·50	0·19	.....	.....	.....	.....	.....	.....	62·25
.....	.....	.....	...	...	...	...	...	2,105	5·00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5·00
26	.....	.....	...	...	...	...	...	2,921	6·19	0·50	0·19	0·06	.....	.....	.....	.....	.....	.....	.....	6·94
.....	.....	.....	...	...	...	...	...	1,999	4·68	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	4·74
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
473	105	52	...	...	...	...	26	45,864	97·00	7·22	2·37	1·10	0·25	0·12	.....	.....	.....	.....	0·06	108·78
121	60	.....	...	...	...	...	...	3,300	5·59	1·74	0·37	0·30	0·15	.....	.....	.....	.....	.....	.....	8·15
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....	.....	...	...	...	...	...	75	0·11	0·04	.....	0·04	.....	.....	.....	.....	.....	.....	.....	0·19
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	15	15	...	...	...	...	...	780	0·59	0·81	0·44	.....	0·04	0·04	.....	.....	.....	.....	.....	1·92
15	.....	.....	...	...	...	...	...	15	.....	.....	.....	0·04	.....	.....	.....	.....	.....	.....	.....	0·04
.....	.....	.....	...	...	...	...	...	30	.....	0·04	0·04	.....	.....	.....	.....	.....	.....	.....	.....	0·08
.....	.....	.....	...	...	...	...	...	1,187	2·82	0·11	.....	.....	.....	.....	.....	.....	.....	.....	.....	2·93
30	.....	.....	...	...	...	...	...	75	.....	0·04	.....	0·07	.....	.....	.....	.....	.....	.....	.....	0·11
90	15	.....	...	...	...	...	...	255	0·11	0·04	0·22	0·22	0·04	.....	.....	.....	.....	.....	.....	0·63
15	.....	.....	...	...	...	...	...	195	0·18	0·26	.....	0·04	.....	.....	.....	.....	.....	.....	.....	0·48
.....	.....	.....	...	...	...	...	...	45	.....	0·11	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·11
30	45	15	...	...	...	...	...	300	0·15	0·26	0·26	0·07	0·11	0·04	.....	.....	.....	.....	.....	0·89
75	90	.....	...	...	...	15	...	15,148	35·44	1·30	0·22	0·18	0·22	.....	.....	.....	.....	0·04	.....	37·40
15	.....	.....	...	...	...	...	...	315	0·82	0·18	0·04	0·04	.....	.....	.....	.....	.....	.....	.....	0·78
30	.....	.....	...	...	...	...	...	3,492	7·18	1·22	0·15	0·07	.....	.....	.....	.....	.....	.....	.....	8·62
.....	.....	.....	...	...	...	...	...	315	0·74	0·04	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·78
.....	.....	.....	...	...	...	...	...	105	0·07	0·15	0·04	.....	.....	.....	.....	.....	.....	.....	.....	0·26
486	225	30	...	...	...	15	...	25,092	53·50	6·34	1·78	1·07	0·56	0·08	.....	.....	.....	0·04	.....	63·37
30	.....	.....	...	...	...	...	...	6,680	5·97	1·23	0·13	0·03	.....	.....	.....	.....	.....	.....	.....	7·36
.....	.....	.....	...	...	...	...	...	181	0·13	0·07	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·20
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	271	0·20	0·10	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·30
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
90	.....	.....	...	...	...	...	...	1,600	0·57	0·90	0·20	0·10	.....	.....	.....	.....	.....	.....	.....	1·77
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	150	0·03	0·03	0·07	0·03	.....	.....	.....	.....	.....	.....	.....	0·16
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	785	0·77	0·06	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·86

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubit.	1 & 2	2 & 3
						Acres.					
Acres 907; square miles 1·42.	**Block 10**, *situated in Tuppeh Seemah.*—(Continued.)	....	.....	.....	...	...	...	Mahwa ...	417	259	484
								Paras ...	.....	.....	.....
								Persar ...	968	211	181
								Sakwa ...	44,936	3,144	1,965
								Seeda ...	426	30	.....
								Dowta ...	11,186	1,814	151
								Then ...	5,865	422	.....
								Sissu ...	121	.....	.....
								Total ...	60,870	8,054	3,173
Acres 698; square miles 1·09.	**Block 11**, *situated in Tuppeh Seemah.*										
	North and East.—The boundary between Seemah and Munkheree tuppehs. *South.*—The boundary between Oreeya and Bulbul mouzahs; then along the boundary between Oreeya and Surjoo mouzahs. *West.*—A demarcated line running from the boundary of Oreeya and Sonwar mouzahs north-east until reaching the boundary between Seemah and Munkheree tuppehs.	Of little value except for the enormous quantities of bamboos.	Surjoo road	None ...	None	19·5	2·80	Asan ...	426	36	.....
								Gamhar ...	36	107	.....
								Garso ...	286	179	72
								Ginyan ...	143	36	36
								Jamun ...	.....	.....	.....
								Jamti ...	36	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	72	36	.....
								Khair ...	107	36	.....
								Kumbi ...	107	.....	.....
								Kusum ...	789	322	214
								Mahwa ...	.....	.....	.....
								Paras ...	.....	.....	.....
								Persar ...	1,214	642	179
								Sakwa ...	1,361	.....	.....
								Seeda ...	1,253	322	179
								Dowta ...	36	72	.....
								Then ...	2,931	251	.....
								Sissu ...	2,219	72	.....
								Total ...	11,016	2,111	680
Acres 1,523; square miles 2·38.	**Block 12**, *situated in Tuppeh Seemah.*										
	North.—The Jorhur nuddy ... ... *East.*—The boundary between Seemah and Munkheree. *South.*—The Mahrapanee nuddy; then along the boundary between the Peree and Jaipoor mouzahs. *West.*—A demarcated line running first north-east, then north from the boundary of the Peree and Jaipoor mouzahs to the Jorhur nuddy.	Consists almost entirely of young *sál*; poor in bamboos.	New cart road.	None ...	None	35	2·3	Asan ...	13,265	1,081	395
								Gamhar ...	45	259	45
								Garso ...	.....	.....	.....
								Ginyan ...	304	45	.....
								Jamun ...	304	274	45
								Jamti ...	1,387	1,569	1,614
								Khaua ...	.....	.....	.....
								Karam ...	91	213	274
								Khair ...	182	.....	.....
								Kumbi ...	.....	.....	.....
								Kusum ...	395	137	91
								Mahwa ...	5,436	2,482	472
								Paras ...	.....	.....	.....
								Persar ...	4,127	700	609
								Sakwa ...	92,294	1,482	304
								Seeda ...	7,097	472	.....
								Dowta ...	1,660	2,394	259
								Then ...	12,016	218	45
								Sissu ...	.....	.....	.....
								Total ...	138,603	11,776	4,153
Acres 950; square miles 1·45	**Block 13**, *situated in Tuppeh Seemah.*										
	North.—The Dhurchuree nuddy until reaching the boundary of the Koorwatolah and Doorum mouzahs. *East.*—The boundary between Koorwatolah and Doorum mouzahs. *West.*—The Koel river.	Contents principally young *sál*; few mature trees seen anywhere in block; poor in bamboos.	The Koel river.	None ...	None	26	2·30	Asan ...	6,761	286	215
								Gamhar ...	72	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	1,358	72	36
								Jamun ...	.....	.....	.....
								Jamti ...	.....	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	72	.....	.....
								Khair ...	7,366	72	.....
								Kumbi ...	.....	.....	.....
								Kusum ...	465	394	107
								Mahwa ...	72	286	144
								Paras ...	107	179	.....
								Persar ...	716	251	286
								Sakwa ...	37,088	465	107
								Seeda ...	9,830	144	36
								Dowta ...	16,526	153	215
								Then ...	236	36	.....
								Sissu ...	539	72	.....
								Total ...	81,208	2,410	1,146

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block.									Total amount of material per acre.											
Between								Total.	Under one cubit.	Between										Total.
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.										Cubits.										
60	30	.....	...	...	...	...	...	1,250	4·60	0·29	0·53	0·07	0·03	.....	.....	.....	.....	.....	.....	5·52
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	1,360	1·07	0·23	0·20	.....	.....	.....	.....	.....	.....	.....	.....	1·50
756	151	.....	...	...	...	...	...	50,952	49·57	3·47	2·17	0·83	0·16	.....	.....	.....	.....	.....	.....	56·20
.....	.....	.....	...	...	...	...	...	456	4·70	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	4·73
.....	.....	.....	...	...	...	...	...	13,151	12·33	2·00	0·16	.....	.....	.....	.....	.....	.....	.....	.....	14·49
.....	.....	.....	...	...	...	...	...	6,287	6·47	0·47	.....	.....	.....	.....	.....	.....	.....	.....	.....	6·94
.....	.....	.....	...	...	...	...	...	121	0·13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·13
966	181	.....	...	...	...	...	...	73,244	80·54	8·88	3·49	1·06	0·19	.....	.....	.....	.....	.....	.....	100·16
.....	.....	.....	...	...	...	...	...	462	0·61	0·05	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·66
.....	.....	.....	...	...	...	...	...	143	0·05	0·15	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·20
.....	.....	.....	...	...	...	...	...	537	0·41	0·25	0·10	.....	.....	.....	.....	.....	.....	.....	.....	0·76
36	36	.....	...	...	...	...	...	287	0·21	0·05	0·05	0·05	0·05	.....	.....	.....	.....	.....	.....	0·41
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	36	0·05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·05
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	108	0·10	0·05	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·15
.....	.....	.....	...	...	...	...	...	143	0·15	0·05	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·20
.....	.....	.....	...	...	...	...	...	107	0·15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·15
107	36	.....	...	...	...	...	...	1,468	1·13	0·46	0·31	0·15	0·05	.....	.....	.....	.....	.....	.....	2·10
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
214	72	.....	...	...	...	...	...	2,321	1·74	0·92	0·26	0·31	0·10	.....	.....	.....	.....	.....	.....	3·33
.....	.....	.....	...	...	...	...	...	1,361	1·95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1·95
.....	.....	.....	...	...	...	...	...	1,754	1·80	0·46	0·27	.....	.....	.....	.....	.....	.....	.....	.....	2·53
.....	.....	.....	...	...	...	...	...	108	0·05	0·10	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·15
.....	.....	.....	...	...	...	...	...	3,182	4·20	0·36	.....	.....	.....	.....	.....	.....	.....	.....	.....	4·56
107	.....	.....	...	...	...	...	...	2,398	3·18	0·10	.....	0·15	.....	.....	.....	.....	.....	.....	.....	3·43
464	144	.....	...	...	...	...	...	14,415	15·78	3·00	0·99	0·66	0·20	.....	.....	.....	.....	.....	.....	20·63
137	.....	.....	...	...	...	...	...	14,878	8·71	0·71	0·26	0·09	.....	.....	.....	.....	.....	.....	.....	9·77
.....	.....	.....	...	...	...	...	...	349	0·03	0·17	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·23
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
182	.....	.....	...	...	...	...	...	531	0·20	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·35
.....	.....	.....	...	...	...	...	...	623	0·20	0·18	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·41
213	45	.....	...	...	...	...	...	4,828	0·91	1·03	1·06	0·14	0·03	.....	.....	.....	.....	.....	.....	3·17
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	.....	.....	...	...	...	...	...	623	0·06	0·14	0·18	0·03	.....	.....	.....	.....	.....	.....	.....	0·41
.....	.....	.....	...	...	...	...	...	182	0·12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·12
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	91	.....	...	...	...	...	...	714	0·36	0·09	0·06	.....	0·06	.....	.....	.....	.....	.....	.....	0·47
137	.....	.....	...	...	...	...	...	8,527	3·51	1·63	0·31	0·09	.....	.....	.....	.....	.....	.....	.....	5·54
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
350	.....	.....	...	...	...	...	...	5,786	2·71	0·46	0·40	0·23	.....	.....	.....	.....	.....	.....	.....	3·80
259	182	.....	...	...	...	...	...	94,471	60·00	0·94	0·20	0·17	0·12	.....	.....	.....	.....	.....	.....	62·03
.....	.....	.....	...	...	...	...	...	7,569	4·66	0·31	.....	.....	.....	.....	.....	.....	.....	.....	.....	4·97
.....	.....	.....	...	...	...	...	...	4,813	1·09	1·90	0·17	.....	.....	.....	.....	.....	.....	.....	.....	3·16
.....	.....	.....	...	...	...	...	...	12,279	7·89	0·80	0·03	.....	.....	.....	.....	.....	.....	.....	.....	8·72
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,323	318	.....	...	...	...	...	...	156,173	99·95	8·39	2·73	0·87	0·21	.....	.....	.....	.....	.....	.....	108·15
72	.....	.....	...	...	...	...	...	7,334	7·27	0·31	0·23	0·08	.....	.....	.....	.....	.....	.....	.....	7·89
.....	.....	.....	...	...	...	...	...	72	0·08	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·08
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	.....	.....	...	...	...	...	...	1,538	1·46	0·08	0·04	0·08	.....	.....	.....	.....	.....	.....	.....	1·66
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	72	0·08	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·08
36	.....	.....	...	...	...	...	...	7,474	7·92	0·08	.....	0·04	.....	.....	.....	.....	.....	.....	.....	8·04
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	966	0·50	0·42	0·12	.....	.....	.....	.....	.....	.....	.....	.....	1·04
36	.....	.....	...	...	...	...	...	538	0·08	0·31	0·15	0·04	.....	.....	.....	.....	.....	.....	.....	0·58
.....	.....	.....	...	...	...	...	...	286	0·12	0·19	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·31
72	.....	.....	...	...	...	...	...	1,325	0·77	0·27	0·31	0·08	.....	.....	.....	.....	.....	.....	.....	1·43
36	.....	.....	...	...	...	...	...	37,896	40·00	0·50	0·12	0·04	.....	.....	.....	.....	.....	.....	.....	40·66
.....	.....	.....	...	...	...	...	...	10,010	10·57	0·15	0·04	.....	.....	.....	.....	.....	.....	.....	.....	10·76
36	.....	.....	...	...	...	...	...	16,930	17·77	1·65	0·23	0·04	.....	.....	.....	.....	.....	.....	.....	19·69
.....	.....	.....	...	...	...	...	...	272	2·54	0·04	.....	.....	.....	.....	.....	.....	.....	.....	.....	2·58
36	.....	.....	...	...	...	...	...	647	0·58	0·08	.....	0·04	.....	.....	.....	.....	.....	.....	.....	0·70
396	.....	.....	...	...	...	...	...	85,160	89·74	4·08	1·24	0·44	.....	.....	.....	.....	.....	.....	.....	95·50

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of trees.	Under one cubit.	1 & 2	2 & 3
Acres 1,008; square miles 1·58.	**Block 14**, *situated in Tuppeh Seemah.*					Acres.					
	North.—The boundary between Seemah and Baree tuppehs. *East and South.*—A demarcated line running from the Seemah-Baree boundary to the boundary of the Khoremoree and Kautokona mouzahs. *West.*—The boundary between the Khoremoree and Kautokona mouzahs.	Contents chiefly *sál* and *dowta*, some of the latter of good size. *Then* and *mowah* also pretty frequently seen; moderately rich in bamboos.	The Koel river.	A few scattered houses.	15	27	2·67	Asan ...	2,236	716	112
								Gambar ...	1,532	1,008	187
								Garso ...	.....	37	.....
								Ginyan ...	2,464	484	37
								Jamun ...	.....	.....	75
								Jamti ...	261	373	261
								Khaua ...	.....	.....	.....
								Karam ...	150	224	150
								Khair ...	.....	.....	.....
								Kumbi ...	37	75	.....
								Kusum ...	1,159	224	224
								Mahwa ...	3,468	1,966	968
								Paras ...	.....	.....	.....
								Persar ...	1,573	784	633
								Sakwa ...	27,851	224	224
								Seeda ...	5,231	336	.....
								Dowta ...	22,700	5,654	600
								Then ...	7,548	1,200	150
								Sissu ...	37	37	.....
								Total ...	76,146	13,342	3,811
Acres 1,268; square miles 1·98.	**Block 15**, *situated in Tuppeh Seemah.*										
	North.—The boundary between the Hurraroo and Kautokona mouzahs. *East.*—A small demarcated stream running south from the Seemah-Baree boundary to the Koel. *South.*—The Koel river. *West.*—The boundary between Seemah and Khamee tuppehs.	Rich in *sál*, *dowta*, *mahwa asan*, and *jamti*; poor in bamboos.	The Koel river.	Kautokona	20	15·5	1·22	Asan ...	7,906	1,793	652
								Gambar ...	245	226	.....
								Garso ...	.....	.....	.....
								Ginyan ...	570	81	163
								Jamun ...	.....	.....	.....
								Jamti ...	3,259	2,445	1,377
								Khaua ...	.....	.....	.....
								Karam ...	163	81	163
								Khair ...	4,305	.....	.....
								Kumbi ...	81	163	.....
								Kusum ...	407	407	163
								Mahwa ...	2,608	1,956	735
								Paras ...	1,377	400	81
								Persar ...	490	652	245
								Sakwa ...	60,460	735	400
								Seeda ...	4,880	163	.....
								Dowta ...	19,804	4,648	896
								Then ...	8,323	814	81
								Sissu ...	.....	.....	.....
								Total ...	114,977	14,654	5,046
Acres 855; square miles 1·34.	**Block 16**, *situated in Tuppeh Seemah.*										
	North.—The boundary between the Chatum and Baroo mouzahs. *East.*—The boundary between the Chatum and Kookoo mouzahs. *South.*—A demarcated line running first south; then south-west from the boundary between the Chatum and Kookoo mouzahs, until reaching the boundary of the Chatum and Gunneshpore mouzahs. *West.*—The boundary between Chatum and Kutteeyah mouzahs.	Contains principally *sál*, little of which, however, is of any size; moderately rich in bamboos.	New cart road	None ...	None	26·5	3·10	Asan ...	2,710	516	387
								Gambar ...	93	93	.....
								Garso ...	.....	.....	.....
								Ginyan ...	62	.....	.....
								Jamun ...	.....	.....	.....
								Jamti ...	355	516	258
								Khaua ...	.....	.....	.....
								Karam ...	31	93	.....
								Khair ...	6,386	31	.....
								Kumbi ...	31	.....	.....
								Kusum ...	31	220	93
								Mahwa ...	3,582	1,223	567
								Paras ...	31	31	.....
								Persar ...	180	322	268
								Sakwa ...	31,652	419	129
								Seeda ...	3,283	355	62
								Dowta ...	7,712	2,163	226
								Then ...	5,104	616	31
								Sissu ...	.....	.....	.....
								Total ...	59,252	6,604	2,011
Acres 2,845; square miles 4·44.	**Block 17**, *situated in Tuppeh Khamee.*										
	North.—The Burmahee nuddy; then a demarcated line until reaching the nuddy forming the boundary between the Hurlee and Purroh mouzahs. *East.*—The river forming the boundary between the Hurbee and Purroh mouzahs. *South.*—The Koel river.	The upper portion of the block contains some good timber, principally *dowta* and *asan*; *sál* is found all through it; the lower portion near the river consists principally of *sál*, none of which is of any size; moderately rich in bamboos.	The Koel river.	None ...	None	·57	2·00	Asan ...	23,756	4,267	939
								Gambar ...	100	199	.....
								Garso ...	.....	.....	.....
								Ginyan ...	2,702	597	427
								Jamun ...	142	.....	.....
								Jamti ...	1,053	1,194	711
								Khaua ...	.....	.....	.....
								Karam ...	995	455	100
								Khair ...	11,892	398	.....

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block. Between 3 & 4 (Cubits.)	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	Total.	Total amount of material per acre. Under one cubit.	Between 1 & 2 (Cubits.)	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	Total.
75	37	...	...	...	...	...	...	3,176	2·22	0·71	0·11	0·07	0·04	...	...	...	...	...	...	3·15
37	...	...	...	...	...	...	...	2,764	1·52	1·00	0·19	0·04	...	...	...	...	...	...	...	2·75
...	...	...	...	...	...	...	...	37	...	0·04	...	...	...	...	...	...	...	...	...	0·04
...	...	...	...	...	...	...	...	2,985	2·44	0·48	0·04	...	...	...	...	...	...	...	...	2·96
...	37	...	...	...	...	...	...	112	...	...	0·07	...	0·04	...	...	...	...	...	...	0·11
...	...	...	...	...	...	...	...	895	0·26	0·37	0·26	...	...	...	...	...	...	...	...	0·89
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	37	...	...	...	...	...	...	361	0·15	0·22	0·15	...	0·04	...	...	...	...	...	...	0·56
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	112	0·04	0·07	...	...	...	...	...	...	...	...	...	0·11
75	...	...	...	...	...	...	...	1,682	1·15	0·22	0·22	0·07	...	...	...	...	...	...	...	1·66
150	75	...	...	...	...	...	...	6,647	3·44	1·97	0·96	0·15	0·07	...	...	...	...	...	...	6·59
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
448	75	...	...	...	...	...	...	3,702	1·56	0·78	0·81	0·44	0·07	...	...	...	...	...	...	3·66
...	...	...	...	...	...	...	...	28,299	27·63	0·22	0·22	...	...	...	...	...	...	...	...	28·07
...	...	...	...	...	...	...	...	5,567	5·19	0·33	...	...	...	...	...	...	...	...	...	5·52
75	...	...	...	...	...	...	...	29,009	22·32	5·59	0·59	0·07	...	...	...	...	...	...	...	28·77
75	37	...	...	...	...	...	...	8,810	7·29	1·18	0·15	0·07	0·04	...	...	...	...	...	...	8·73
...	...	...	...	...	...	...	...	74	0·04	0·04	...	...	...	...	...	...	...	...	...	0·08
935	298	...	...	...	...	...	...	94,532	75·45	13·22	3·77	0·91	0·30	...	...	...	...	...	...	93·65
163	...	...	...	...	...	...	...	10,514	6·26	0·52	0·13	...	...	...	...	...	...	...	...	8·33
...	...	...	...	...	...	...	...	471	0·19	0·26	...	...	...	...	...	...	...	...	...	0·45
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
163	...	...	...	...	...	...	...	977	0·45	0·06	0·13	0·13	...	...	...	...	...	...	...	0·77
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
896	...	...	...	...	...	...	...	7,077	2·58	1·94	1·09	0·71	...	...	...	...	...	...	...	6·32
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	407	0·13	0·06	0·13	...	...	...	...	...	...	...	...	0·32
...	...	...	...	...	...	...	...	4,395	3·48	...	...	...	...	...	...	...	...	...	...	3·48
...	...	...	...	...	...	...	...	244	0·06	0·13	...	...	...	...	...	...	...	...	...	0·19
81	81	...	...	...	...	...	...	1,139	0·32	0·32	0·13	0·06	0·06	...	...	...	...	...	...	0·89
81	81	...	...	...	...	...	...	5,461	2·06	1·55	0·58	0·06	0·06	...	...	...	...	...	...	4·31
...	...	...	...	...	...	...	...	1,948	1·09	0·39	0·06	...	...	...	...	...	...	...	...	1·54
163	...	...	...	...	...	...	...	1,550	0·39	0·52	0·19	0·13	...	...	...	...	...	...	...	1·23
407	163	...	...	...	...	...	...	62,255	47·87	0·58	0·39	0·32	0·13	...	...	...	...	...	...	49·29
...	...	...	...	...	...	...	...	5,052	3·87	0·13	...	...	...	...	...	...	...	...	...	4·00
...	...	...	...	...	...	...	...	25,348	15·68	3·68	0·71	...	...	...	...	...	...	...	...	20·07
163	...	...	...	...	...	...	...	9,381	6·59	0·64	0·06	0·13	...	...	...	...	...	...	...	7·42
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2,117	325	...	...	...	...	...	...	137,119	91·02	11·68	3·99	1·67	0·25	...	...	...	...	...	...	108·61
31	31	...	...	...	...	...	...	3,675	3·17	0·60	0·45	0·04	0·04	...	...	...	...	...	...	4·30
...	...	...	...	...	...	...	...	186	0·11	0·11	...	...	...	...	...	...	...	...	...	0·22
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	62	0·08	...	...	...	...	...	...	...	...	...	...	0·08
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
129	62	...	...	...	...	...	...	1,320	0·42	0·60	0·30	0·15	0·08	...	...	...	...	...	...	1·55
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	124	0·04	0·11	...	...	...	...	...	...	...	...	...	0·15
...	...	...	...	...	...	...	...	6,417	7·47	0·04	...	...	...	...	...	...	...	...	...	7·51
...	...	...	...	...	...	...	...	31	0·04	...	...	...	...	...	...	...	...	...	...	0·04
31	...	...	...	...	...	...	...	381	0·04	0·26	0·11	0·04	...	...	...	...	...	...	...	0·45
189	161	...	...	...	...	...	...	5,722	4·19	1·43	1·02	0·34	0·19	...	...	...	...	...	...	7·17
...	...	...	...	...	...	...	...	62	0·04	0·04	...	...	...	...	...	...	...	...	...	0·08
129	129	...	...	...	...	...	...	1,027	0·34	0·88	0·30	0·15	0·15	...	...	...	...	...	...	1·82
62	31	31	...	...	...	...	...	32,324	37·02	0·49	0·15	0·08	0·04	0·04	...	...	...	...	...	37·82
...	...	...	...	...	...	...	...	3,700	3·78	0·42	0·08	...	...	...	...	...	...	...	...	4·28
93	...	...	...	...	...	...	...	10,194	9·02	2·53	0·26	0·11	...	...	...	...	...	...	...	1·92
31	...	...	...	...	...	...	...	3,782	3·63	0·72	0·04	0·04	...	...	...	...	...	...	...	14·43
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
695	414	31	...	...	...	...	...	69,007	69·39	7·73	2·71	0·95	0·50	0·04	...	...	...	...	...	81·32
143	256	...	51	...	...	...	...	29,411	8·35	1·50	0·33	0·05	0·09	...	0·02	...	...	...	...	10·34
...	...	...	...	...	...	...	...	299	0·03	0·07	...	...	...	...	...	...	...	...	...	0·10
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	3,726	0·95	0·21	0·64	...	...	...	...	...	...	...	...	1·20
...	...	...	...	...	...	...	...	142	0·05	...	...	...	...	...	...	...	...	...	...	0·05
199	51	...	...	...	...	...	...	3,208	0·37	0·42	0·25	0·07	0·02	...	...	...	...	...	...	1·18
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
199	...	...	...	...	...	...	...	1,749	0·35	0·16	0·04	0·07	...	...	...	...	...	...	...	0·62
...	...	...	...	...	...	...	...	12,290	4·18	0·14	...	...	...	...	...	...	...	...	...	4·32

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubit.	1 & 2	2 & 3
						Acres.					
Acres 2,846; square miles 4·44.	**Block 17**, *situated in Tuppeh Khamee.*—(Continued.) *West.*—The Goanjh nuddy to its junction with the Burmahee nuddy.	....	.....	.....	...	...	...	Kumbi ... Kusum ... Mahwa ... Paras ... Persar ... Sakwa ... Seeda ... Dowta ... Then ... Sissu ...	..... 3,044 740 256 1,236 101,282 24,353 48,763 10,526 1,087	..... 1,393 498 51 740 2,248 996 16,928 2,788 298	..... 498 199 ..... 549 284 ..... 2,646 298 .....
								Total ...	231,909	33,250	6,651
Acres 2,570; square miles 4·01.	**Block 18**, *situated in Tuppeh Khamee.* *North.*—The boundary between Khamee and Doorjag tuppehs. *East.*—The boundary between the Gansedag and Lat mouzahs. *South.*—The Charo nuddy. *West.*—The boundary between the Bereh and Tunwale mouzahs.	The upper portion near the Doorjag boundary contains some good timber, principally *dowta* and *asan*. The *sál* lies scattered all through it. The southern portion near the Charo nuddy contains little of any value, principally mutilated and frequently burnt *sál*; poor in bamboos.	The Charo nuddy, which flows into the Koel river.	None ...	None	·61	2·37	Asan ... Gamhar ... Garso ... Ginyan ... Jamun ... Jamti ... Khaua ... Karam ... Khair ... Kumbi ... Kusum ... Mahwa ... Paras ... Persar ... Sakwa ... Seeda ... Dowta ... Then ... Sissu ...	19,044 234 ..... 1,645 ..... 2,107 41 668 9,740 41 1,439 4,292 1,979 925 144,151 13,631 47,776 15,960 41	7,427 256 ..... 591 ..... 2,955 82 858 429 ..... 1,287 3,881 82 429 3,958 430 12,876 4,343	1,902 .... 41 ..... 1,568 123 ..... 214 ..... 429 2,596 ..... 463 768 123 1,151 463 .....
								Total ...	263,704	30,884	9,821
Acres 2,004; square miles 3·13.	**Block 19**, *situated in Tuppeh Khamee.* *North.*—The boundary between Khamee and Doorjag tuppehs. *East.*—The boundary between the Moral and Tunwale mouzahs. *South.*—The Charo nuddy to its junction with the Koel; then the Koel river. *West.*—A demarcated line running north from the Koel river to the Khamee-Doorjag boundary.	The northern and upper portion near the Doorjag boundary contains some fine good trees; the lower half consists of little else but burnt and mutilated *sál*, which extends to the river; *sál* found all through the block; poor in bamboos.	The Koel river.	None ...	None	60	2·99	Asan ... Gamhar ... Garso ... Ginyan ... Jamun ... Jamti ... Khaua ... Karam ... Khair ... Kumbi ... Kusum ... Mahwa ... Paras ... Persar ... Sakwa ... Seeda ... Dowta ... Then ... Sissu ...	26,854 467 ..... 836 ..... 1,663 100 333 4,509 ..... 1,036 4,108 2,972 1,203 90,799 10,421 33,016 13,060 34	2,806 166 ..... 100 ..... 541 34 400 .... 367 2,204 601 435 2,204 270 2,806 1,944	567 100 .... 270 ..... 34 .... 166 836 34 234 468 ..... 400 135 .....
								Total ...	205,411	14,878	3,344
Acres 6,724; square miles 10·51.	**Block 20**, *situated in Tuppeh Doorjag.* *North.*—The boundary between Bareedohur and Ookamand mouzahs; then the boundary between the Hurnamand and Ookamand mouzahs; then the boundary between the Hurnamand and Cheepadohur mouzahs; then the boundary between Joroahur and Cheepadohur mouzahs; and then the boundary between the Doorjag and Baree tuppehs. *East.*—The Jeewa nuddy. *South.*—The Jeewa nuddy for a short distance; then a demarcated line running from the Jeewa nuddy west, until reaching the nuddy which flows north through Joroahur; then north along this nuddy to the junction with the Hurnamand nuddy; then along the latter, first west and then south-west, until after crossing the Hurnamand-Cheepadohur road; then a demarcated line running west until reaching the boundary of the Hurnamand and Joroahur mouzahs; then along the nuddy which flows west through Hurnamand mouzah until meeting the boundary of the Hurnamand and Bareedohur mouzahs, and continues along the same nuddy until reaching the boundary between the Bareedohur and Saidope mouzahs. *West.*—The boundary between the Bareedohur and Lodgam mouzahs.	This large area is at present perfectly valueless, although the return of *sál* is high; it has all suffered tremendously; nothing has been spared, and there is hardly a single tree to be seen. The *sál* overruns the whole block; poor in bamboos all through.	Joroahur and Cheepadohur road.	Bareechutan Kananda (deserted).	25	137	2·03	Asan ... Gamhar ... Garso ... Ginyan ... Jamun ... Jamti ... Khaua ... Karam ... Khair ... Kumbi ... Kusum ... Mahwa ... Paras ... Persar ... Sakwa ... Seeda ... Dowta ... Then ... Sissu ...	102,070 245 ..... 589 ..... 1,179 ..... 245 181,082 ..... 245 ..... 14,053 2,454 299,487 31,572 29,144 27,367	8,136 147 ..... 49 49 491 .... 1,964 ..... 49 98 1,865 49 3,631 98 1,029 834	1,571 .... 49 ..... 491 .... 294 ..... 49 49 736 294 933 ..... 441 98 .....
								Total ...	690,632	18,460	5,005

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of materials in block.									Total amount of material per acre.											
Between								Total.	Under one cubit.	Between										Total.
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.										Cubits.										
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
142	142	.....	...	...	...	...	...	5,419	1·07	0·56	0·17	0·05	0·05	.....	.....	.....	.....	.....	.....	1·90
199	.....	.....	...	...	...	...	...	1,636	0·26	0·17	0·07	0·07	.....	.....	.....	.....	.....	.....	.....	0·57
.....	.....	.....	...	...	...	...	...	307	0·09	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·11
398	142	.....	...	...	...	...	...	3,067	0·44	0·26	0·19	0·14	0·05	.....	.....	.....	.....	.....	.....	1·08
256	100	.....	...	...	...	...	...	104,170	35·60	0·79	0·10	0·09	0·04	.....	.....	.....	.....	.....	.....	36·02
.....	.....	.....	...	...	...	...	...	25,349	8·66	0·35	.....	.....	.....	.....	.....	.....	.....	.....	.....	8·91
856	.....	.....	...	...	...	...	...	68,693	17·14	5·95	0·93	0·12	.....	.....	.....	.....	.....	.....	.....	24·14
.....	.....	.....	...	...	...	...	...	13,612	3·70	0·98	0·10	.....	.....	.....	.....	.....	.....	.....	.....	4·78
.....	.....	.....	...	...	...	...	...	1,365	0·37	0·10	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·47
1,891	691	.....	51	...	...	...	...	274,443	81·51	11·68	2·22	0·60	0·25	.....	0·02	.....	.....	.....	.....	96·34
668	128	.....	...	...	...	...	...	29,169	7·41	2·89	0·74	0·26	0·05	.....	.....	.....	.....	.....	.....	11·35
.....	.....	.....	...	...	...	...	...	490	0·13	0·10	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·23
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	2,277	0·64	0·23	0·02	.....	.....	.....	.....	.....	.....	.....	.....	0·89
.....	41	.....	...	...	...	...	...	41	.....	.....	.....	...	0·02	.....	.....	.....	.....	.....	.....	0·02
1,670	.....	.....	...	...	...	...	...	8,300	0·82	1·15	0·61	0·07	.....	.....	.....	.....	.....	.....	.....	2·65
.....	.....	.....	...	...	...	...	...	246	0·02	0·03	0·05	.....	.....	.....	.....	.....	.....	.....	.....	0·10
82	41	.....	...	...	...	...	...	1,649	0·26	0·33	.....	0·03	0·02	.....	.....	.....	.....	.....	.....	0·64
.....	.....	.....	...	...	...	...	...	10,383	3·79	0·16	0·08	.....	.....	.....	.....	.....	.....	.....	.....	4·03
.....	.....	.....	...	...	...	...	...	41	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·02
41	41	.....	...	...	...	...	...	3,237	0·56	0·49	0·16	0·02	0·02	.....	.....	.....	.....	.....	.....	1·25
820	123	.....	...	...	...	...	...	11,712	1·67	1·51	1·01	0·28	0·05	.....	.....	.....	.....	.....	.....	4·52
.....	.....	.....	...	...	...	...	...	2,061	0·77	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·80
214	167	.....	41	...	...	...	...	2,239	0·36	0·16	0·18	0·06	0·06	.....	0·02	.....	.....	.....	.....	0·86
295	41	.....	...	...	...	...	...	149,213	56·09	1·54	0·30	0·11	0·02	.....	.....	.....	.....	.....	.....	58·06
41	.....	.....	...	...	...	...	...	14,215	5·30	0·25	0·05	0·02	.....	.....	.....	.....	.....	.....	.....	5·62
123	.....	.....	...	...	...	...	...	61,906	18·59	5·01	0·44	0·05	.....	.....	.....	.....	.....	.....	.....	24·09
82	41	.....	...	...	...	...	...	20,889	6·21	1·09	0·18	0·03	0·02	.....	.....	.....	.....	.....	.....	8·13
.....	.....	.....	...	...	...	...	...	41	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·02
4,036	623	.....	41	...	...	...	...	318,109	102·66	15·57	3·82	0·95	0·26	.....	0·02	.....	.....	.....	.....	123·28
100	34	.....	...	...	...	...	...	30,361	13·45	1·40	0·28	0·05	0·02	.....	.....	.....	.....	.....	.....	15·20
34	.....	.....	...	...	...	...	...	767	0·23	0·08	0·05	0·02	.....	.....	.....	.....	.....	.....	.....	0·38
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	936	0·42	0·05	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·47
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
135	34	.....	...	...	...	...	...	2,643	0·83	0·27	0·13	0·07	0·02	.....	.....	.....	.....	.....	.....	1·32
.....	.....	.....	...	...	...	...	...	134	0·05	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·07
.....	.....	.....	...	...	...	...	...	767	0·17	0·20	0·02	.....	.....	.....	.....	.....	.....	.....	.....	0·39
.....	.....	.....	...	...	...	...	...	4,509	2·25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2·25
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34	.....	.....	...	...	...	...	...	1,603	0·52	0·18	0·08	0·02	.....	.....	.....	.....	.....	.....	.....	0·80
435	66	.....	...	...	...	...	...	7,049	2·05	1·10	0·42	0·23	0·05	.....	.....	.....	.....	.....	.....	3·82
34	.....	.....	...	...	...	...	...	3,641	1·48	0·30	0·02	0·02	.....	.....	.....	.....	.....	.....	.....	1·82
135	100	.....	...	...	...	...	...	2,107	0·85	0·23	0·12	0·07	0·05	.....	.....	.....	.....	.....	.....	1·11
66	34	.....	...	...	...	...	...	102,571	40·80	1·10	0·23	0·03	0·02	.....	.....	.....	.....	.....	.....	51·18
.....	.....	.....	...	...	...	...	...	10,691	5·20	0·13	.....	.....	.....	.....	.....	.....	.....	.....	.....	5·33
.....	.....	.....	...	...	...	...	...	41,223	18·97	1·40	0·20	.....	.....	.....	.....	.....	.....	.....	.....	20·57
.....	.....	.....	...	...	...	...	...	15,139	6·52	0·97	0·07	.....	.....	.....	.....	.....	.....	.....	.....	7·56
.....	.....	.....	...	...	...	...	...	34	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·02
973	268	.....	...	...	...	...	...	224,774	102·61	7·42	1·62	0·50	0·14	.....	.....	.....	.....	.....	.....	112·29
1,237	303	49	...	...	...	...	...	113,446	15·18	1·21	0·23	0·18	0·06	0·007	.....	.....	.....	.....	.....	16·567
.....	.....	.....	...	...	...	...	...	392	0·04	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·06
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...
98	49	.....	...	...	...	...	...	834	0·09	0·007	0·007	0·01	0·007	.....	.....	.....	.....	.....	.....	0·121
.....	.....	.....	...	...	...	...	...	49	.....	0·007	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·007
197	98	.....	...	...	...	...	...	2,456	0·18	0·07	0·07	0·03	0·01	.....	.....	.....	.....	.....	.....	0·36
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	245	0·04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·04
.....	.....	.....	...	...	...	...	...	183,940	27·02	0·29	0·04	.....	.....	.....	.....	.....	.....	.....	.....	27·35
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
98	49	.....	...	...	...	...	...	490	0·04	0·007	0·007	0·01	0·007	.....	.....	.....	.....	.....	.....	0·071
98	.....	.....	...	...	...	...	...	245	.....	0·01	0·007	0·01	.....	.....	.....	.....	.....	.....	.....	0·027
98	.....	.....	...	...	...	...	...	16,752	2·00	0·28	0·11	0·01	.....	.....	.....	.....	.....	.....	.....	2·40
441	98	.....	...	...	...	...	...	3,336	0·37	0·007	0·04	0·07	0·01	.....	.....	.....	.....	.....	.....	0·497
393	.....	.....	...	...	...	...	...	304,444	44·54	0·54	0·14	0·06	.....	.....	.....	.....	.....	.....	.....	45·28
.....	.....	.....	...	...	...	...	...	31,970	4·74	0·01	.....	.....	.....	.....	.....	.....	.....	.....	.....	4·75
147	.....	.....	...	...	...	...	...	30,761	4·26	0·15	0·07	0·02	.....	.....	.....	.....	.....	.....	.....	4·50
.....	.....	.....	...	...	...	...	...	28,299	4·07	0·12	0·01	.....	.....	.....	.....	.....	.....	.....	.....	4·20
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2,797	687	49	.	...		...	...	717,659	102·66	2·728	0·731	0·40	0·094	0·007	.....	.....	.....	.....	.....	106·620

Detailed Account of the Reserved State

Area in block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of trees.	Under one cubit.	1 & 2	2 & 3
						Acres.					
Acres 3,674; square miles 5·74.	**Block 21,** *situated in Tuppeh Doorjag.* *North.*—The Dauree nuddy ... ... *East.*—The boundary between Jurgudh and Saidope mouzahs; then east along a demarcated nuddy until reaching the boundary of the Saidope and Bareedohur mouzahs; then runs again south along the boundary between the Saidope and Bareedohur mouzahs, until reaching the Doorjag-Khamee boundary. *South.*—The boundary between the Doorjag and Khamee tuppehs. *West.*—The boundary between the Jurgudh and Morwaie Kullan mouzahs.	The northern portion is of very little value, consisting principally of *khair* scrub; getting south the *khair* nearly almost disappears and the *sál* predominates; the immediate south and that part of the block lying in the Saidope mouzah contains some good *dowta, then, persar, asan,* and some *mahwa*; poor in bamboos in the northern portion, and moderately rich in the southern.	Dauree nuddy	None ...	None	76	2·07	Asan ...	25,865	3,908	1,063
								Gamhar ...	97	97	242
								Garso ...	.....	.....	.....
								Ginyan ...	242	97	145
								Jamun ...	.....	.....	47
								Jamti ...	.....	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	97	145	145
								Khair ...	47,615	2,755	97
								Kumbi ...	.....	.....	.....
								Kusum ...	776	531	290
								Mahwa ...	2,756	1,210	1,552
								Paras ...	5,731	1,357	194
								Persar ...	1,396	676	870
								Sakwa ...	166,101	3,674	485
								Seeda ...	19,582	1,598	194
								Dowta ...	22,801	1,583	676
								Then ...	20,207	4,886	1,210
								Sissu ...	.....	.....	.....
								Total ...	312,766	22,422	7,201
Acres 582; square miles 0·91.	**Block 22,** *situated in Tuppeh Doorjag.* *North.*—The Koel river ... ... *East.*—The boundary between Pootoagur and Cheecha mouzahs; then the boundary between Pootoagur and Horeelong. *South.*—The boundary between Pootoagur and Sindhorwa mouzahs. *West.*—The Koel river.	The western and southern portion is fairly stocked with young *sál*, but contains few trees of any dimensions; also some few *mahwa*, a large quantity of *then*, but all small and crippled; also some few good *asan, persar,* and *karam*; poor in bamboos."	The Koel river.	None ...	None	21	3·6	Asan ...	3,242	640	252
								Gamhar ...	55	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	111	.....	.....
								Jamun ...	.....	111	55
								Jamti ...	111	28	.....
								Khaua ...	.....	.....	.....
								Karam ...	84	28	55
								Khair ...	9,312	252	28
								Kumbi ...	.....	.....	.....
								Kusum ...	28	28	.....
								Mahwa ...	196	111	111
								Paras ...	1,135	168	28
								Persar ...	139	222	139
								Sakwa ...	19,677	1,967	914
								Seeda ...	3,411	84	.....
								Dowta ...	5,328	336	168
								Then ...	5,570	361	55
								Sissu ...	.....	.....	.....
								Total ...	46,304	4,336	1,805
Acres 1,348; square miles 2·10	**Block 23,** *situated in Tuppeh Doorjag.* *North.*—The boundary between Khoord Morwaie and Chootroosgur mouzahs. *East.*—The boundary between Khoord Morwaie and Morwaie Kullan; then west along a small nuddy forming boundary between block and parent village of Morwaie Khoord; then south to the Hetlee Morwaie boundary. *South.*—The boundary between Khoord Morwaie and Hetlee Morwaie. *West.*—The boundary between Khoord Morwaie and Sindhorwa mouzahs.	Although the *sál* is scattered pretty well over the whole area in patches, still it is of little value, owing to its having been tapped, and there is none of any dimensions; poor in bamboos.	The Koel river.	Auratika ...	20	47	3·5	Asan ...	11,778	4,083	400
								Gamhar ...	29	114	29
								Garso ...	.....	.....	.....
								Ginyan ...	.....	.....	.....
								Jamun ...	145	29	.....
								Jamti ...	.....	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	.....	.....	.....
								Khair ...	23,790	86	.....
								Kumbi ...	29	.....	.....
								Kusum ...	.....	.....	29
								Mahwa ...	1,343	314	200
								Paras ...	.....	.....	.....
								Persar ...	343	685	832
								Sakwa ...	29,210	3,035	1,088
								Seeda ...	5,117	114	.....
								Dowta ...	8,917	1,061	376
								Then ...	7,091	1,168	29
								Sissu ...	.....	.....	.....
								Total ...	87,790	10,689	2,983
Acres 861; square miles 1·35	**Block 24,** *situated in Tuppeh Doorjag.* *North and East.*—The boundary between the Doorjag and Baree tuppehs. *South.*—The boundary between the Moondoh and Kocheelah mouzahs. *West.*—A demarcated line running north from the boundary between Moondoh and Kocheelah to the boundary of the Doorjag and Baree tuppehs.	Contains no *sál* and few trees of any value; poor in bamboos.	Moondoh road to the Koel river.	None ...	None	18	2·72	Asan ...	440	146	109
								Gamhar ...	146	.....	36
								Garso ...	.....	.....	.....
								Ginyan ...	1,580	146	220
								Jamun ...	.....	.....	.....
								Jamti ...	.....	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	476	220	109
								Khair ...	28,680	1,310	109
								Kumbi ...	.....	.....	.....
								Kusum ...	.....	.....	73
								Mahwa ...	.....	.....	.....
								Paras ...	440	258	183
								Persar ...	.....	73	.....
								Sakwa ...	.....	.....	.....
								Seeda ...	5,215	73	.....
								Dowta ...	4,067	258	73
								Then ...	1,064	73	73
								Sissu ...	.....	.....	.....
								Total ...	42,708	2,457	985

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block. Between 3 & 4 (Cubits.)	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	Total.	Total amount of materials per acre. Under one cubit.	Between 1 & 2 (Cubits.)	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	Total.
628	145	.....	...	...	...	...	...	31,609	7·04	1·06	0·29	0·17	0·04	.....	.....	.....	.....	.....	.....	8·60
.....	.....	.....	...	...	...	...	...	436	0·03	0·03	0·07	.....	.....	.....	.....	.....	.....	.....	.....	0·13
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
97	.....	.....	...	...	...	...	...	581	0·07	0·03	0·04	0·03	.....	.....	.....	.....	.....	.....	.....	0·17
.....	.....	.....	...	...	...	...	...	47	.....	.....	0·01	.....	.....	.....	.....	.....	.....	.....	.....	0·01
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
97	.....	.....	...	...	...	...	...	484	0·03	0·04	0·04	0·03	.....	.....	.....	.....	.....	.....	.....	0·14
.....	.....	.....	...	...	...	...	...	50,467	12·96	0·75	0·03	.....	.....	.....	.....	.....	.....	.....	.....	13·74
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
145	97	.....	...	...	...	...	...	1,839	0·21	0·14	0·08	0·04	0·03	.....	.....	.....	.....	.....	.....	0·50
776	242	.....	...	...	...	...	...	6,536	0·51	0·33	0·42	0·21	0·07	.....	.....	.....	.....	.....	.....	1·54
.....	.....	.....	...	...	...	...	...	7,182	1·56	0·34	0·05	.....	.....	.....	.....	.....	.....	.....	.....	1·95
725	194	.....	...	...	...	...	...	3,861	0·38	1·18	0·24	0·20	0·05	.....	.....	.....	.....	.....	.....	1·05
97	47	.....	...	...	...	...	...	170,404	45·21	1·00	0·13	0·03	0·01	.....	.....	.....	.....	.....	.....	46·38
.....	.....	.....	...	...	...	...	...	21,369	5·33	0·43	0·05	.....	.....	.....	.....	.....	.....	.....	.....	5·81
338	145	.....	...	...	...	...	...	25,053	6·07	0·43	0·18	0·09	0·04	.....	.....	.....	.....	.....	.....	6·81
194	47	.....	...	...	...	...	...	26,544	5·50	1·33	0·33	0·05	0·01	.....	.....	.....	.....	.....	.....	7·22
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3,097	917	.....	...	...	...	...	...	346,412	84·90	6·09	1·96	0·85	0·25	.....	.....	.....	.....	.....	.....	94·05
55	.....	.....	...	...	...	...	...	4,129	5·57	1·10	0·43	0·10	.....	.....	.....	.....	.....	.....	.....	7·20
.....	.....	.....	...	...	...	...	...	55	0·10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·10
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	111	0·19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·19
28	.....	.....	...	...	...	...	...	194	.....	0·19	0·10	0·05	.....	.....	.....	.....	.....	.....	.....	0·34
.....	.....	.....	...	...	...	...	...	139	0·19	0·05	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·24
28	.....	.....	...	...	...	...	...	28	.....	.....	.....	0·05	.....	.....	.....	.....	.....	.....	.....	0·05
55	28	.....	...	...	...	...	...	250	0·14	0·05	0·10	0·10	0·05	.....	.....	.....	.....	.....	.....	0·44
.....	.....	.....	...	...	...	...	...	9,592	16·00	0·43	0·05	.....	.....	.....	.....	.....	.....	.....	.....	16·48
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	...	...	...	...	...	111	0·05	0·05	.....	0·10	.....	.....	.....	.....	.....	.....	.....	0·20
84	.....	84	...	...	...	...	...	586	0·33	0·19	0·19	0·14	.....	0·14	.....	.....	.....	.....	.....	0·99
.....	.....	.....	...	...	...	...	...	1,331	1·95	0·29	0·05	.....	.....	.....	.....	.....	.....	.....	.....	2·29
111	.....	.....	...	...	...	...	...	611	0·24	0·36	0·24	0·19	.....	.....	.....	.....	.....	.....	.....	1·03
504	.....	.....	...	...	...	...	...	23,062	33·81	3·38	1·57	0·86	.....	.....	.....	.....	.....	.....	.....	39·62
.....	.....	.....	...	...	...	...	...	3,495	5·86	0·14	.....	.....	.....	.....	.....	.....	.....	.....	.....	6·00
.....	.....	.....	...	...	...	...	...	3,827	5·71	0·57	0·29	.....	.....	.....	.....	.....	.....	.....	.....	6·57
.....	.....	.....	...	...	...	...	...	5,986	9·57	0·62	0·10	.....	.....	.....	.....	.....	.....	.....	.....	10·29
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
920	28	84	...	...	...	...	...	53,567	79·71	7·42	3·12	1·59	0·05	0·14	.....	.....	.....	.....	.....	92·05
.....	.....	.....	...	...	...	...	...	16,261	8·77	3·04	0·30	.....	.....	.....	.....	.....	.....	.....	.....	12·11
.....	.....	.....	...	...	...	...	...	172	0·02	0·09	0·02	.....	.....	.....	.....	.....	.....	.....	.....	0·12
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	172	0·11	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·13
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	23,876	17·64	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	17·70
.....	.....	.....	...	...	...	...	...	29	0·02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·02
.....	.....	.....	...	...	...	...	...	29	.....	.....	0·02	.....	.....	.....	.....	.....	.....	.....	.....	0·02
29	.....	.....	...	...	...	...	...	1,886	1·00	0·23	0·15	0·02	.....	.....	.....	.....	.....	.....	.....	1·40
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	.....	.....	...	...	...	...	...	1,889	0·26	0·51	0·62	0·02	.....	.....	.....	.....	.....	.....	.....	1·41
286	.....	.....	...	...	...	...	...	33,619	21·75	2·26	0·81	0·21	.....	.....	.....	.....	.....	.....	.....	25·03
.....	.....	.....	...	...	...	...	...	5,231	3·81	0·09	.....	.....	.....	.....	.....	.....	.....	.....	.....	3·90
.....	.....	.....	...	...	...	...	...	10,354	6·44	0·79	0·28	.....	.....	.....	.....	.....	.....	.....	.....	7·71
.....	.....	.....	...	...	...	...	...	8,288	5·26	0·87	0·02	.....	.....	.....	.....	.....	.....	.....	.....	6·17
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
344	.....	.....	...	...	...	...	...	101,806	65·30	7·96	2·22	0·25	.....	.....	.....	.....	.....	.....	.....	75·73
36	.....	.....	...	...	...	...	...	731	0·67	0·22	0·17	0·06	.....	.....	.....	.....	.....	.....	.....	1·12
.....	.....	.....	...	...	...	...	...	182	0·22	.....	0·06	.....	.....	.....	.....	.....	.....	.....	.....	0·28
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
73	.....	.....	...	...	...	...	...	2,019	2·39	0·22	0·33	0·11	.....	.....	.....	.....	.....	.....	.....	3·05
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	805	0·72	0·33	0·17	.....	.....	.....	.....	.....	.....	.....	.....	1·22
36	.....	.....	...	...	...	...	...	30,035	42·39	1·83	0·17	0·06	.....	.....	.....	.....	.....	.....	.....	44·45
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	73	.....	...	...	...	...	...	146	.....	.....	0·11	.....	0·11	.....	.....	.....	.....	.....	.....	0·22
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36	.....	.....	...	...	...	...	...	917	0·67	0·39	0·29	0·06	.....	.....	.....	.....	.....	.....	.....	1·41
.....	36	.....	...	...	...	...	...	109	.....	0·11	.....	.....	0·06	.....	.....	.....	.....	.....	.....	0·17
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	5,288	7·89	0·11	.....	.....	.....	.....	.....	.....	.....	.....	.....	8·00
.....	.....	.....	...	...	...	...	...	4,998	7·06	0·39	0·11	.....	.....	.....	.....	.....	.....	.....	.....	7·56
.....	.....	.....	...	...	...	...	...	1,210	1·61	0·11	0·11	.....	.....	.....	.....	.....	.....	.....	.....	1·83
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
181	109	.....	...	...	...	...	...	46,440	63·62	3·71	1·52	0·29	0·17	.....	.....	.....	.....	.....	.....	69·31

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of trees.	Under one cubit.	1 & 2	2 & 3
Acres 2,875; square miles 4·49.	**Block 25, *situated in Tuppeh Baree.***					Acres.					
	North.—The boundary between the Kedh and Gadee mouzahs; then a demarcated line running first south then east on to the Oorunga below the junction with the Pooboora. *East.*—The Oorunga nuddy until it meets the boundary between the Kedh and the Hehegurha mouzahs. *South.*—The boundary between the Kodh and Hehegurha mouzahs; then the boundary between the Kodh and Choonsrah mouzahs; then the boundary between the Baree and Doorjag tuppehs. *West.*—The boundary between the Baree and Doorjag tuppehs.	Although the valuation survey extends over 65 acres, this block contains few trees of any size, and certainly no timber; poor as regards bamboos; any there are, are scattered about in the northern part of the block.	The Oorunga river and the Cheepadohur road.	One village of a few houses lying just inside the eastern boundary.	15	65	2·26	Asan ...	24,322	1,495	862
								Gamhar ...	43	.....	86
								Garso ...	.....	.....	.....
								Ginyan ...	1,236	489	86
								Jamun ...	.....	.....	.....
								Jamti ...	230	43	86
								Khaua ...	.....	.....	.....
								Karam ...	115	129	43
								Khair ...	98,814	891	431
								Kumbi ...	.....	.....	.....
								Kusum ...	43	.....	43
								Mahwa ...	129	129	129
								Paras ...	632	661	43
								Persar ...	517	86	43
								Sakwa ...	50,312	561	258
								Seeda ...	16,617	86	.....
								Dowta ...	47,064	387	.....
								Then ...	12,995	129	43
								Sissu ...	.....	.....	.....
								Total ...	253,069	5,186	2,153
Acres 1,755; square miles 2·74.	**Block 26, *situated in Tuppeh Baree.***										
	North.—The Oorunga river. *East.*—A demarcated line running from the Oorunga river south for about one mile; then south-east until reaching the boundary of the Doomurkhar and Rubdhee mouzahs; then a demarcated line running first south-west for a short distance; then along the Rubdhee nuddy to its junction with the Teorahee nuddy; then up same until reaching the boundary between the Rubdhee and Lookoomkhar mouzahs. *South.*—The boundary between the Rubdhee and Lookoomkhar mouzahs. *West.*—The boundary between the Doomurkhar and Bukeah mouzahs; then the boundary between the Doomur-khar and Damudur-khar mouzahs; then a demarcated line running north-west until reaching the Betlah river; then along the Betlah river to its junction with the Oorunga.	The great number of bamboos ought to be fair source of revenue, situated as the block is, namely so near the Oorunga. Poorly stocked as regards timber trees, as the valuation survey shows.	The Oorunga river and Daltonganje road.	A few houses near the eastern boundary.	10	84·5	2·00	Asan ...	153	305	.....
								Gamhar ...	51	153	51
								Garso ...	.....	.....	.....
								Ginyan ...	2,239	1,778	560
								Jamun ...	509	153	.....
								Jamti ...	.....	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	1,325	459	407
								Khair ...	44,859	1,221	102
								Kumbi ...	.....	.....	.....
								Kusum ...	.....	51	.....
								Mahwa ...	.....	.....	.....
								Paras ...	25,244	1,018	509
								Persar ...	.....	51	102
								Sakwa ...	.....	.....	.....
								Seeda ...	14,658	204	.....
								Dowta ...	7,176	509	102
								Then ...	762	102	.....
								Sissu ...	.....	.....	.....
								Total ...	96,976	6,004	1,833
Acres 2,301; square miles 3·60.	**Block 27, *situated in Tuppeh Baree.***										
	North.—A demarcated line running west from the boundary between Labhur and Toongaree mouzahs, south of the Labhur village; then down the Labhur nuddy somewhat north; then a demarcated line running about south-east until reaching the Moondoh nuddy. *East.*—A demarcated line running south and a little west of Moondoh village; then a demarcated line running due east until reaching the boundary between Moondoh and Hurratoo; then south along the boundary between Moondoh and Hurratoo mouzahs. *South.*—The boundary between Moondoh and Hurratoo; then the boundary between Baree and Khamee tuppehs. *West.*—The boundary between Baree and Khamee tuppehs.	Well stocked with *sál*, but little of same of any dimensions; few mahwa; some good *asan* and *then*, also some few *kusum*, *karam* and *jamun*. The higher lying portion of this block is very rich in bamboos.	Labhur road and Jeewa nuddy.	None ...	None	74	3·21	Asan ...	11,482	2,140	690
								Gamhar ...	345	124	.....
								Garso ...	.....	.....	.....
								Ginyan ...	3,866	644	311
								Jamun ...	62	.....	.....
								Jamti ...	1,427	1,135	690
								Khaua ...	.....	.....	.....
								Karam ...	782	253	414
								Khair ...	12,200	345	124
								Kumbi ...	.....	.....	.....
								Kusum ...	1,427	437	155
								Mahwa ...	460	216	252
								Paras ...	.....	31	62
								Persar ...	943	598	529
								Sakwa ...	74,944	1,519	252
								Seeda ...	12,287	1,535	216
								Dowta ...	11,053	3,451	1,702
								Then ...	18,050	3,037	980
								Sissu ...	345	529	31
								Total ...	149,673	15,794	6,417
Acres 500; square miles 0·78.	**Block 28, *situated in Tuppeh Baree.***										
	North and East.—A demarcated line running from the boundary between the Oopag and Koorumkheta mouzahs to the Ramnedib river. *South and West.*—The boundary between the Koorumkheta and Kutteeyah mouzahs; then the boundary between the Koorumkheta and Unwateekur mouzahs, and then the boundary between the Koorumkheta and Oopag mouzahs.	Contains principally *sál*, little of which however is of any size; fairly rich in *mahwa* and *persar*, the latter being in some cases of considerable girth. Moderately rich in bamboos in the southern part.	New cart road.	None ...	None	18	3·6	Asan ...	5,170	1,140	166
								Gamhar ...	360	111	27
								Garso ...	.....	.....	.....
								Ginyan ...	139	83	.....
								Jamun ...	.....	.....	.....
								Jamti ...	360	333	83
								Khaua ...	.....	.....	.....
								Karam ...	557	333	111
								Khair ...	1,500	27	.....
								Kumbi ...	27	.....	.....
								Kusum ...	333	222	195
								Mahwa ...	2,750	1,695	610
								Paras ...	83	.....	.....
								Persar ...	945	333	333
								Sakwa ...	22,335	360	27
								Seeda ...	2,305	222	56
								Dowta ...	5,360	2,000	360
								Then ...	7,275	780	111
								Sissu ...	27	.....	.....
								Total ...	49,026	7,639	2,079

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block.								Total.	Total amount of material per acre.											Total.
Between									Under one cubit.	Between										
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.									Cubits.											
43	86	.....	...	...	...	...	...	26,808	8·46	0·50	0·30	0·02	0·03	.....	.....	.....	.....	.....	.....	9·33
.....	.....	.....	...	...	...	...	...	129	0·02	.....	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·05
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
86	.....	.....	...	...	...	...	...	1,397	0·43	0·17	0·03	0·03	.....	.....	.....	.....	.....	.....	.....	0·66
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	359	0·03	0·02	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·13
.....	86	.....	...	...	...	...	...	86	.....	.....	.....	.....	0·03	.....	.....	.....	.....	.....	.....	0·03
.....	86	43	...	...	...	...	...	416	0·40	0·05	0·02	.....	0·03	0·02	.....	.....	.....	.....	.....	0·52
43	.....	.....	...	...	...	...	...	100,179	34·37	0·31	0·15	0·02	.....	.....	.....	.....	.....	.....	.....	34·85
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	43	.....	...	...	...	...	...	172	0·02	.....	0·02	0·02	0·02	.....	.....	.....	.....	.....	.....	0·08
86	129	.....	...	43	...	...	...	645	0·05	0·05	0·05	0·03	0·05	.....	.....	0·02	.....	.....	.....	0·25
86	.....	.....	...	...	...	...	...	1,422	2·20	0·23	0·02	0·03	.....	.....	.....	.....	.....	.....	.....	2·48
.....	.....	.....	...	...	...	...	...	646	0·18	0·03	0·02	.....	.....	.....	.....	.....	.....	.....	.....	0·23
.....	43	.....	...	...	...	...	...	51,274	17·50	0·23	0·09	.....	0·02	.....	.....	.....	.....	.....	.....	17·84
.....	.....	.....	...	...	...	...	...	16,703	5·78	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	5·81
.....	.....	.....	...	...	...	...	...	47,451	16·37	0·14	.....	.....	.....	.....	.....	.....	.....	.....	.....	16·51
.....	.....	.....	...	...	...	...	...	13,167	4·52	0·05	0·02	.....	.....	.....	.....	.....	.....	.....	.....	4·59
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
387	473	43	...	43	...	...	...	261,354	90·38	1·83	0·78	0·15	0·18	0·02	.....	0·02	.....	.....	.....	93·36
153	51	.....	...	...	...	...	...	662	0·09	0·18	.....	0·09	0·03	.....	.....	.....	.....	.....	.....	0·39
.....	.....	.....	...	...	...	...	...	255	0·03	0·09	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·15
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
254	.....	.....	...	...	...	...	...	4,831	1·28	1·02	0·32	0·15	.....	.....	.....	.....	.....	.....	.....	2·77
.....	.....	.....	...	...	...	...	...	662	0·29	0·09	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·38
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
662	254	.....	...	...	...	...	...	3,107	0·75	0·26	0·23	0·38	0·15	.....	.....	.....	.....	.....	.....	1·77
.....	.....	.....	...	...	...	...	...	46,182	27·84	0·70	0·00	.....	.....	.....	.....	.....	.....	.....	.....	28·60
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	51	.....	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·03
.....	51	.....	...	...	...	...	...	51	.....	.....	.....	.....	0·03	.....	.....	.....	.....	.....	.....	0·03
102	.....	.....	...	...	...	...	...	26,873	14·38	0·58	0·29	0·06	.....	.....	.....	.....	.....	.....	.....	15·31
51	.....	.....	...	...	...	...	...	204	.....	0·03	0·06	0·03	.....	.....	.....	.....	.....	.....	.....	0·12
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	14,862	8·35	0·12	.....	.....	.....	.....	.....	.....	.....	.....	.....	8·47
51	.....	.....	...	...	...	...	...	7,838	4·09	0·29	0·06	0·03	.....	.....	.....	.....	.....	.....	.....	4·47
.....	.....	.....	...	...	...	...	...	864	0·44	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·50
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,273	356	.....	...	...	...	...	...	108,442	57·54	3·45	1·05	0·74	0·21	.....	.....	.....	.....	.....	.....	62·99
414	124	.....	...	...	...	...	...	14,850	4·99	0·93	0·30	0·18	0·05	.....	.....	.....	.....	.....	.....	6·45
.....	.....	.....	...	...	...	...	...	409	0·15	0·05	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·20
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
93	.....	.....	...	...	...	...	...	4,914	1·68	0·28	0·14	0·04	.....	.....	.....	.....	.....	.....	.....	2·14
.....	31	.....	155	...	...	...	...	248	0·08	.....	.....	.....	0·01	.....	0·07	.....	.....	.....	.....	0·11
989	276	.....	...	...	...	...	...	4,517	0·62	0·58	0·30	0·43	0·12	.....	.....	.....	.....	.....	.....	2·05
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
311	62	.....	...	...	...	...	...	1,822	0·34	0·11	0·18	0·14	0·03	.....	.....	.....	.....	.....	.....	0·80
.....	.....	.....	...	...	...	...	...	12,669	5·30	0·15	0·05	.....	.....	.....	.....	.....	.....	.....	.....	5·50
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
218	155	.....	...	...	...	...	...	2,392	0·62	0·19	0·07	0·09	0·07	.....	.....	.....	.....	.....	.....	1·04
216	31	.....	...	...	...	...	...	1,175	0·20	0·09	0·11	0·09	0·01	.....	.....	.....	.....	.....	.....	0·50
.....	.....	.....	...	...	...	...	...	93	.....	0·01	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·04
346	352	31	...	...	...	...	...	2,699	0·41	0·26	0·23	0·15	0·11	0·01	.....	.....	.....	.....	.....	1·17
252	31	.....	...	...	...	...	...	76,998	32·57	0·66	0·11	0·11	0·01	.....	.....	.....	.....	.....	.....	33·46
93	.....	.....	...	...	...	...	...	13,931	5·34	0·58	0·09	0·04	.....	.....	.....	.....	.....	.....	.....	6·05
782	62	.....	...	...	...	...	...	17,050	4·31	1·50	0·74	0·34	0·03	.....	.....	.....	.....	.....	.....	7·42
713	63	.....	...	...	...	...	...	22,852	7·84	1·32	0·43	0·31	0·03	.....	.....	.....	.....	.....	.....	9·93
.....	.....	.....	...	...	...	...	...	905	0·15	0·23	0·01	.....	.....	.....	.....	.....	.....	.....	.....	0·39
4,427	1,087	31	155	...	...	...	...	177,584	65·05	6·94	2·79	1·92	0·47	0·01	0·07	.....	.....	.....	.....	77·25
86	27	.....	...	...	...	...	...	6,559	10·34	2·28	0·38	0·11	0·06	.....	.....	.....	.....	.....	.....	13·12
.....	.....	.....	...	...	...	...	...	498	0·72	0·22	0·06	.....	.....	.....	.....	.....	.....	.....	.....	1·00
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	222	0·29	0·17	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·46
.....	.....	.....		...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	.....	.....	...	...	...	...	...	803	0·72	0·67	0·22	0·06	.....	.....	.....	.....	.....	.....	.....	1·67
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	.....	.....	...	...	...	...	...	1,028	1·12	0·66	0·22	0·06	.....	.....	.....	.....	.....	.....	.....	2·06
.....	.....	.....	...	...	...	...	...	1,527	3·00	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	3·06
.....	.....	.....	...	...	...	...	...	27	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·06
.....	27	.....	...	...	...	...	...	777	0·67	0·44	0·39	.....	0·06	.....	.....	.....	.....	.....	.....	1·56
139	56	.....	...	...	...	...	...	5,250	5·50	3·39	1·22	0·29	0·11	.....	.....	.....	.....	.....	.....	10·51
.....	.....	.....	...	...	...	...	...	83	0·17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·17
222	111	56	...	...	...	...	...	2,000	1·89	0·67	0·67	0·44	0·22	0·11	.....	.....	.....	.....	.....	4·00
56	27	.....	...	...	...	...	...	22,805	44·67	0·72	0·06	0·11	0·06	.....	.....	.....	.....	.....	.....	45·62
.....	.....	.....	...	...	...	...	...	2,583	4·61	0·44	0·11	.....	.....	.....	.....	.....	.....	.....	.....	5·16
111	.....	.....	...	...	...	...	...	7,881	10·72	4·00	0·72	0·22	.....	.....	.....	.....	.....	.....	.....	15·66
27	.....	.....	...	...	...	...	...	8,193	14·55	1·50	0·22	0·06	.....	.....	.....	.....	.....	.....	.....	16·39
.....	.....	.....	...	...	...	...	...	27	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·06
605	248	56	...	...	...	...	...	60,213	90·09	15·28	4·22	1·35	0·51	0·11	.....	.....	.....	.....	.....	120·56

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubik.	1 & 2	2 & 3
Acres 3,730; square miles 5·83.	**Block 29**, *situated in Tuppeh Baree.* *North.*—A demarcated line running from the boundary of the Kumandee and Baigatola mouzahs to the boundary of the Kumandee and Moondhur mouzahs; then a demarcated line running south to the Moondhur river; and then a demarcated line running east to the boundary of the Moondhur and Bindee mouzahs. *East.*—The boundary between the Moondhur and Koodag mouzahs. *South.*—The boundary between the Moondhur and Oorwale mouzah; then the boundary between the Kumandee and Kookoo mouzahs. *West.*—The boundary between the Kumandee and Baigatola mouzahs.	Rich in *sál* all through the block, none of which has been allowed to attain any size; very little *khair*; contains some *dowta*, *asan*, *persar* and *mahwa*; moderately rich in bamboos.	Oorunga river and new cart road.	A few scattered houses.	12	Acres. 76	2·04	Asan ...	16,688	2,690	1,178
								Gamhar ...	2,111	393	.....
								Garso ...	.....	.....	.....
								Ginyan ...	5,408	490	245
								Jamun ...	147	.....	.....
								Jamti ...	4,465	1,384	540
								Khaua ...	.....	.....	.....
								Karam ...	441	634	147
								Khair ...	2,160	.....	.....
								Kumbi ...	245	49	98
								Kusum ...	3,189	1,225	692
								Mahwa ...	21,261	5,446	690
								Paras ...	441	.....	.....
								Persar ...	12,514	3,581	1,960
								Sakwa ...	179,637	634	49
								Seeda ...	18,463	1,472	346
								Dowta ...	45,006	6,243	1,031
								Then ...	29,728	1,002	246
								Sissu ...	.....	.....	.....
								Total ...	341,904	28,152	7,231
Acres 3,070; square miles 4·80.	**Block 30**, *situated in Tuppeh Baree.* *North.*—A demarcated line running from the boundary of the Kumandee and Nowagadha mouzahs first south-east, then north-east, and then east until it meets the boundary between the Nowagadha and Bindee mouzahs; then a demarcated line running east along a small nuddy; then again east along a demarcated line until meeting the boundary of the Bindee and Bichrah mouzahs. *East.*—Along the boundary between the Bindee and Bichrah mouzahs. *South.*—The boundary between the Bindee and Koodar mouzahs; then runs north along the boundary between the Bindee and Moondhur mouzahs; and then again west along the boundary of the Nowagadha and Moondhur mouzahs. *West.*—The boundary between the Nowagadha and Kumandee mouzahs.	The hilly portion of the block contains some good timber; the *sál* is found all through it, both in the hills as well as down on the level. The northern portion is particularly rich in the same. The foot of the hills is well stocked with *mahwa* and some *kusum*; the southern or hilly portion contains some fine *dowta*, *persar*, *hurré* and *seeda*. The *sál* has suffered all through from tapping. There are no bamboos near the foot of the hills or the level ground; moderately rich in the southern and hilly portion of the block.	The Oorunga river.	None ...	None	91	2·96	Asan ...	26,685	2,496	677
								Gamhar ...	1,658	776	203
								Garso ...	.....	.....	.....
								Ginyan ...	1,552	540	135
								Jamun ...	.....	.....	.....
								Jamti ...	236	304	34
								Khaua ...	.....	.....	.....
								Karam ...	1,382	236	169
								Khair ...	13,298	34	.....
								Kumbi ...	101	34	.....
								Kusum ...	776	507	135
								Mahwa ...	8,258	4,553	2,306
								Paras ...	682	135	.....
								Persar ...	3,205	1,552	1,485
								Sakwa ...	112,515	912	540
								Seeda ...	15,381	2,617	236
								Dowta ...	44,714	7,552	3,458
								Then ...	8,703	1,850	609
								Sissu ...	.....	.....	.....
								Total ...	239,141	23,907	10,167
Acres 194, square miles 0·61.	**Block 31**, *situated in Tuppeh Baree.* *North.*—The Koel river ... ... *East.*—The Koel river. *South.*—The boundary between Ledoopah and Choriyah mouzahs. *West.*—A demarcated line; then a small nuddy running north to the Koel.	This block is simply valueless at present. Although same contains a good amount of *sál*, still the forest is all disconnected by plots of cultivation. Along the river there are some few *kusum* and *asan*; poor in bamboos.	The Oorunga river.	None ...	None	23	5·8	Asan ...	1,552	240	120
								Gamhar ...	.....	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	17	.....	.....
								Jamun ...	.....	.....	.....
								Jamti ...	.....	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	68	17	.....
								Khair ...	4,488	34	.....
								Kumbi ...	.....	.....	.....
								Kusum ...	.....	34	17
								Mahwa ...	.....	.....	.....
								Paras ...	325	17	.....
								Persar ...	.....	.....	34
								Sakwa ...	15,145	51	136
								Seeda ...	1,541	.....	.....
								Dowta ...	3,169	206	.....
								Then ...	3,371	.....	.....
								Sissu ...	.....	.....	.....
								Total ...	30,176	599	307
Acres 442, square miles 0·69.	**Block 32**, *situated in Tuppeh Baree.* *North.*—The boundary between Ledoopah and Purkee mouzahs. *East.*—The boundary between Ledoopah and Hootwag mouzahs. *South.*—The Koel river. *West.*—The Koel river.	Although this block contains some *sál*, the general appearance of the block is very poor indeed. Near the river there are a few *kusum* and *asan*, otherwise this block contains no timber trees; poor in bamboos.	The Oorunga river.	None ...	None	24	5·4	Asan ...	5,568	351	241
								Gamhar ...	18	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	92	.....	.....
								Jamun ...	.....	.....	.....
								Jamti ...	.....	.....	18
								Khaua ...	.....	.....	.....
								Karam ...	37	.....	.....
								Khair ...	12,006	.....	.....
								Kumbi ...	.....	.....	.....
								Kusum ...	18	18	37
								Mahwa ...	54	54	18
								Paras ...	388	129	18
								Persar ...	37	.....	74
								Sakwa ...	16,872	37	37
								Seeda ...	3,145	92	.....
								Dowta ...	4,620	444	18
								Then ...	6,291	.....	.....
								Sissu ...	.....	.....	.....
								Total ...	49,652	1,125	461

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block.								Total.	Total amount of material per acre.											Total.
Between									Under one cubit.	Between										
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.										Cubits.										
441	196	.....	...	...	...	...	...	21,202	4·47	0·72	0·32	0·12	0·05	.....	.....	.....	.....	.....	.....	5·68
.....	.....	.....	...	...	...	...	...	2,504	0·57	0·11	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·68
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	6,143	1·45	0·13	0·07	.....	.....	.....	.....	.....	.....	.....	.....	1·65
49	49	.....	...	...	...	...	...	245	0·04	.....	.....	0·01	0·01	.....	.....	.....	.....	.....	.....	0·06
245	.....	.....	...	...	...	...	...	6,634	1·20	0·37	0·14	0·07	.....	.....	.....	.....	.....	.....	.....	1·78
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
392	.....	.....	...	...	...	...	...	1,614	0·12	0·17	0·04	0·11	.....	.....	.....	.....	.....	.....	.....	0·44
.....	.....	.....	...	...	...	...	...	2,160	0·58	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·58
.....	.....	.....	...	...	...	...	...	392	0·07	0·01	0·03	.....	.....	.....	.....	.....	.....	.....	.....	0·11
98	245	.....	...	...	...	...	...	5,449	0·86	0·33	0·19	0·08	0·07	.....	.....	.....	.....	.....	.....	1·48
1,038	49	.....	...	...	...	...	...	28,484	5·70	1·46	0·19	0·28	0·01	.....	.....	.....	.....	.....	.....	7·64
.....	.....	.....	...	...	...	...	...	441	0·12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·12
1,384	147	.....	...	...	...	...	...	19,586	3·36	0·96	0·53	0·37	0·04	.....	.....	.....	.....	.....	.....	5·26
98	98	.....	...	...	...	...	...	180,516	48·10	0·17	0·01	0·03	0·03	.....	.....	.....	.....	.....	.....	48·40
.....	.....	.....	...	...	...	...	...	20,281	4·95	0·40	0·09	.....	.....	.....	.....	.....	.....	.....	.....	5·44
294	.....	.....	...	...	...	...	...	54,574	12·07	2·21	0·23	0·08	.....	.....	.....	.....	.....	.....	.....	14·64
98	.....	.....	...	...	...	...	...	31,973	7·07	0·51	0·07	0·03	.....	.....	.....	.....	.....	.....	.....	8·58
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4,137	784	.....	...	...	...	...	...	382,198	91·69	7·55	1·96	1·13	0·21	.....	.....	.....	.....	.....	.....	102·54
574	101	.....	...	...	...	...	...	30,733	8·69	0·81	0·29	0·19	0·03	.....	.....	.....	.....	.....	.....	10·01
34	.....	.....	...	...	...	...	...	2,671	0·54	0·25	0·07	0·01	.....	.....	.....	.....	.....	.....	.....	0·87
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
101	68	.....	...	...	...	...	...	2,396	0·51	0·18	0·04	00·3	0·02	.....	.....	.....	.....	.....	.....	0·78
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
160	.....	.....	...	...	...	...	...	743	0·08	0·10	0·01	0·06	.....	.....	.....	.....	.....	.....	.....	0·25
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
203	203	.....	...	...	...	...	...	2,193	0·45	0·08	0·06	0·07	0·07	.....	.....	.....	.....	.....	.....	0·73
.....	.....	.....	...	...	...	...	...	13,327	4·33	0·01	.....	.....	.....	.....	.....	.....	.....	.....	.....	4·34
.....	34	.....	...	...	...	...	...	169	0·03	0·01	.....	.....	0·01	.....	.....	.....	.....	.....	.....	0·05
270	135	.....	...	...	...	...	...	1,823	0·25	0·17	0·04	0·09	0·04	.....	.....	.....	.....	.....	.....	0·59
2,233	776	101	...	...	...	...	...	18,027	2·69	1·42	1·08	0·73	0·25	0·03	.....	.....	.....	.....	.....	6·20
34	.....	.....	...	...	...	...	...	851	0·22	0·04	.....	0·01	.....	.....	.....	.....	.....	.....	.....	0·27
912	574	.....	34	...	...	...	...	7,762	1·04	0·51	0·48	0·30	0·19	.....	00·1	.....	.....	.....	.....	2·53
135	34	.....	...	...	...	...	...	114,136	36·65	0·30	0·18	0·04	0·01	.....	.....	.....	.....	.....	.....	37·18
34	.....	.....	...	...	...	...	...	18,268	5·01	0·58	0·08	0·01	.....	.....	.....	.....	.....	.....	.....	5·68
1,111	135	.....	...	...	...	...	...	56,950	14·63	2·46	1·12	0·36	0·04	.....	.....	.....	.....	.....	.....	18·61
203	.....	.....	...	...	...	...	...	11,374	3·84	0·60	0·20	0·07	.....	.....	.....	.....	.....	.....	.....	4·71
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6,013	2,060	101	34	...	...	...	...	281,423	78·96	7·52	3·65	1·97	0·66	0·03	0·01	.....	.....	.....	.....	92·80
51	.....	.....	...	...	...	...	...	1,963	7·43	0·61	0·30	0·13	.....	.....	.....	.....	.....	.....	.....	8·47
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	17	0·04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·04
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	17	.....	...	...	...	...	...	102	0·17	0·04	.....	.....	0·04	.....	.....	.....	.....	.....	.....	0·25
.....	.....	.....	...	...	...	...	...	4,522	11·39	0·09	.....	.....	.....	.....	.....	.....	.....	.....	.....	11·48
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	17	.....	...	...	...	...	...	119	.....	0·09	0·04	0·13	0·04	.....	.....	.....	.....	.....	.....	0·30
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	342	0·83	0·04	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·87
.....	.....	.....	...	...	...	...	...	34	.....	.....	0·09	.....	.....	.....	.....	.....	.....	.....	.....	0·09
68	17	.....	...	...	...	...	...	15,417	38·44	0·13	0·35	0·17	0·04	.....	.....	.....	.....	.....	.....	39·13
.....	.....	.....	...	...	...	...	...	1,541	3·91	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3·91
.....	.....	.....	...	...	...	...	...	3,375	8·04	0·52	.....	.....	.....	.....	.....	.....	.....	.....	.....	8·56
.....	.....	.....	...	...	...	...	...	3,871	9·83	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9·83
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
170	51	.....	...	...	...	...	...	31,303	80·08	1·52	0·78	0·43	0·12	.....	.....	.....	.....	.....	.....	83·93
185	37	.....	...	...	...	...	...	6,382	12·54	0·79	0·54	0·42	0·08	.....	.....	.....	.....	.....	.....	14·37
.....	.....	.....	...	...	...	...	...	18	0·04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·04
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	18	.....	...	...	...	...	...	147	0·21	.....	.....	0·08	0·04	.....	.....	.....	.....	.....	.....	0·33
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	18	.....	.....	0·04	.....	.....	.....	.....	.....	.....	.....	.....	0·04
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	37	0·08	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·08
.....	.....	.....	...	...	...	...	...	12,006	27·04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27·04
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	18	.....	...	...	...	...	...	145	0·04	0·04	0·08	0·13	0·04	.....	.....	.....	.....	.....	.....	0·33
37	18	.....	...	...	...	...	...	181	0·13	0·13	0·04	0·08	0·04	.....	.....	.....	.....	.....	.....	0·42
54	.....	.....	...	...	...	...	...	1,089	2·00	0·29	0·04	0·13	.....	.....	.....	.....	.....	.....	.....	2·46
.....	.....	.....	...	...	...	...	...	111	0·08	.....	0·16	.....	.....	.....	.....	.....	.....	.....	.....	0·24
.....	.....	.....	...	...	...	...	...	16,946	38·00	0·08	0·08	.....	.....	.....	.....	.....	.....	.....	.....	38·16
.....	.....	.....	...	...	...	...	...	3,237	7·08	0·21	.....	.....	.....	.....	.....	.....	.....	.....	.....	7·29
18	.....	.....	...	...	...	...	...	5,106	10·42	1·00	0·04	0·04	.....	.....	.....	.....	.....	.....	.....	11·50
.....	.....	.....	...	...	...	...	...	6,291	14·17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14·17
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
385	91	.....	...	...	...	...	...	51,714	111·83	2·54	1·02	0·88	0·20	.....	.....	.....	.....	.....	.....	116·47

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubit.	1 & 2	2 & 3
Acres 1,458; square miles 2·28.	**Block 33, *situated in Tuppeh Baree.***					Acres.					
	North.—The boundary between the Bindee and Deobar mouzahs, first running east, then north-east to the Koel. *East.*—The Koel river; then the boundary between the Bindee and Ledoopah mouzahs. *South.*—A demarcated line running from the Bindee-Ledoopah boundary south-west until reaching a small nuddy; then a demarcated line running west along this nuddy. *West.*—The boundary between the Bindee and Kumandee mouzahs.	No value certainly at present. Block, however, consists principally of young *sál*. These, however, are in most cases merely shoots from the old stumps, and not poles as they appear to be. Just near the river there are a few, otherwise this block is devoid of bamboos.	The Oorunga river.	None ...	None	53	3·64	Asan ...	13,457	1,050	274
								Gamhar ...	.....	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	165	27	.....
								Jamun ...	.....	165	.....
								Jamti ...	494	.....	137
								Khaua ...	.....	.....	.....
								Karam ...	192	.....	.....
								Khair ...	15,324	82	27
								Kumbi ...	.....	.....	.....
								Kusum ...	.....	55	.....
								Mahwa ...	440	192	274
								Paras ...	247	82	27
								Persar ...	494	165	110
								Sakwa ...	65,175	685	350
								Seeda ..	10,206	165	55
								Dowta ...	23,415	1,064	137
								Then ...	12,743	137	55
								Sissu ...	.....	.....	.....
								Total ...	142,350	3,869	1,452
Acres 3,470; square miles 5·42.	**Block 34, *situated in Tuppeh Baree.***										
	North.—A demarcated line running first nearly east, then south-east; then again nearly east until reaching the Sookree nuddy; then along the boundary between the Deobar and the Nudbelwah mouzahs. *East.*—The boundary between Baree and Poondag tuppehs. *South.*—A demarcated line running west, then for a short distance south; then along the boundary south-east until reaching the Oorunga; then down the Oorunga, and along the boundary between the Deobar and Putoki mouzahs; then again down the Oorunga river. *West.*—A demarcated line running north-east from the Oorunga to within a short distance east of the Jumna village.	With the exception of a small patch near the centre, which contains some good *dowla*, *asan* and *persar*, the show of timber is very inferior; poor in bamboos.	Oorunga river, Munkha road.	None ...	None	88	2·52	Asan ...	28,002	4,511	1,338
								Gamhar ...	158	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	276	117	117
								Jamun ...	.....	.....	.....
								Jamti ...	1,068	474	790
								Khaua ..	.....	.....	.....
								Karam ...	593	117	39
								Khair ...	44,069	316	.....
								Kumbi ...	.....	.....	.....
								Kusum ...	39	117	39
								Mahwa ...	526	118	316
								Paras ...	1,896	356	119
								Persar ...	828	237	395
								Sakwa ...	138,557	2,568	828
								Seeda ...	15,962	79	.....
								Dowta ..	51,044	6,675	2,358
								Then ...	11,243	1,423	119
								Sissu ...	.....	.....	.....
								Total ...	294,261	17,148	6,458
Acres 3,143; square miles 4·91.	**Block 35, *situated in Tuppeh Baree.***										
	North.—The boundary between the Sinjoh and Munkah mouzahs. *East.*—The boundary between the Sinjoh and Joorgoor mouzahs, until reaching the Kurkut nuddy; then down the Kurkut until reaching the boundary between the Sinjoh and Nudbelwah mouzahs. *South.*—The boundary between the Sinjoh and Nudbelwah mouzahs. *West.*—A demarcated line running about north, until reaching the boundary of the Sinjoh and Munkah mouzahs.	With the exception of a few big *asan* near the river, this block is valueless. It is, however, well stocked with young *sál* and *sál* shoots.	Munkha road.	Lali ...	20	70	2·22	Asan ...	29,135	5,123	1,351
								Gamhar ...	94	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ..	47	47	.....
								Jamun ...	94	.....	.....
								Jamti ...	94	94	94
								Khaua ...	.....	.....	.....
								Karam ...	563	.....	.....
								Khair ...	77,318	440	566
								Kumbi ...	.....	47	.....
								Kusum ...	.....	.....	47
								Mahwa ...	.....	.....	.....
								Paras ...	12,760	1,226	1,226
								Persar ...	346	220	94
								Sakwa ...	106,550	1,069	314
								Seeda ...	7,229	.....	.....
								Dowta ...	20,869	2,294	94
								Then ...	8,769	47	.....
								Sissu ...	.....	.....	.....
								Total ...	2,63,808	10,607	3,786
Acres. 760; square miles 11·9.	**Block 36, *situated in Tuppeh Baree.***										
	North.—The Suthbuhni nuddy, which forms the boundary between the Koosee and Kummaroh mouzahs. *East.*—A demarcated line running south up a small hill stream, and on to the boundary between the Koosee and Koelee mouzahs. *South.*—The boundary between the Koosee and Koelee mouzahs. *West.*—The boundary between the Koosee and Rankee mouzahs.	Valueless as regards timbers; as valuation survey shows, the only revenue to be realised for years being from the bamboos. This block contains no *sál*.	Daltongunge road.	None ...	None	9	1·2	Asan ...	.....	.....	.....
								Gamhar ...	.....	.....	.....
								Garso ...	.....	.....	.....
								Ginyan ...	253	337	253
								Jamun ...	.....	.....	.....
								Jamti ...	.....	.....	.....
								Khaua ...	.....	.....	.....
								Karam ...	.....	.....	84
								Khair ...	27,021	591	253
								Kumbi ...	.....	.....	.....
								Kusum ...	.....	.....	.....
								Mahwa ...	.....	.....	.....
								Paras ...	928	84	.....
								Persar ...	.....	.....	.....
								Sakwa ...	.....	.....	.....
								Seeda ...	337	.....	.....
								Dowta ...	4,560	168	84
								Then ...	.....	.....	.....
								Sissu .	.....	.....	.....
								Total ...	33,099	1,180	674

Forests in the Palamow Forest Division.—(Continued.)

CONTENTS OF BLOCK.

Total amount of material in block. Between 3 & 4 (Cubits.)	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	Total.	Total amount of material per acre. Under one cubit.	Between 1 & 2 (Cubits.)	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	Total.
274	55	...	...	...	...	...	...	15,110	9·23	0·72	0·19	0·19	0·04	...	...	...	...	...	...	10·37
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	192	0·11	0·02	...	...	...	...	...	...	...	...	...	0·13
27	...	...	...	...	...	...	...	192	...	0·11	...	0·02	...	...	...	...	...	...	...	0·13
...	27	...	...	...	...	...	...	668	0·34	...	0·09	...	0·02	...	...	...	...	...	...	0·45
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55	...	...	...	...	...	...	...	247	0·13	...	...	0·04	...	...	...	...	...	...	...	0·17
...	...	...	...	...	...	...	...	15,433	10·51	0·06	0·02	...	...	...	...	...	...	...	...	10·59
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	55	...	...	...	...	...	...	137	...	0·04	...	0·02	0·04	...	...	...	...	...	...	0·10
302	27	...	...	...	...	...	...	1,235	0·30	0·13	0·19	0·21	0·02	...	...	...	...	...	...	0·85
27	...	...	...	...	...	...	...	383	0·17	0·06	0·02	0·02	...	...	...	...	...	...	...	0·27
82	82	...	...	...	...	...	...	983	0·34	0·08	0·11	0·06	0·06	...	...	...	...	...	...	0·65
247	55	...	...	...	...	...	...	66,516	44·70	0·47	0·24	0·17	0·04	...	...	...	...	...	...	45·62
...	...	...	...	...	...	...	...	10,426	7·00	0·11	0·04	...	...	...	...	...	...	...	...	7·15
...	...	...	...	...	...	...	...	24,616	16·06	0·73	0·09	...	...	...	...	...	...	...	...	16·88
27	...	...	...	...	...	...	...	12,962	8·74	0·09	0·04	0·02	...	...	...	...	...	...	...	8·89
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,008	301	...	...	...	...	...	...	149,040	97·68	2·65	1·00	0·75	0·22	...	...	...	...	...	...	102·25
1,145	79	79	...	...	...	...	...	35,154	8·11	1·30	0·39	0·33	0·02	0·02	...	...	...	...	...	10·17
...	...	...	...	...	...	...	...	158	0·05	...	...	...	...	...	...	...	...	...	...	0·05
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	...	...	...	...	...	...	...	549	0·08	0·03	0·03	0·01	...	...	...	...	...	...	...	0·15
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
351	117	...	...	...	...	...	...	2,800	0·31	0·14	0·23	0·10	0·03	...	...	...	...	...	...	0·81
...	39	...	...	...	...	...	...	39	...	...	...	...	0·01	...	...	...	...	...	...	0·01
...	...	...	...	...	...	...	...	749	0·17	0·03	0·01	...	...	...	...	...	...	...	...	0·21
...	...	...	...	...	...	...	...	44,385	12·70	0·09	...	...	...	...	...	...	...	...	...	12·79
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	39	...	...	...	...	...	...	273	0·01	0·03	0·01	0·01	0·01	...	...	...	...	...	...	0·07
...	...	...	...	...	...	...	...	1,000	0·15	0·05	0·09	...	...	...	...	...	...	...	...	0·29
119	...	...	...	...	...	...	...	2,490	0·55	0·10	0·06	0·06	...	...	...	...	...	...	...	0·77
158	158	79	...	...	...	...	...	1,855	0·24	0·07	0·11	0·05	0·05	0·02	...	...	...	...	...	0·54
79	...	...	...	...	...	...	...	142,032	39·93	0·74	0·24	0·02	...	...	...	...	...	...	...	40·93
...	...	...	...	...	...	...	...	16,041	4·60	0·02	...	...	...	...	...	...	...	...	...	4·62
515	...	...	...	...	...	...	...	60,600	14·71	1·87	0·68	0·15	...	...	...	...	...	...	...	17·41
...	...	...	...	...	...	...	...	12,785	3·24	0·41	0·06	...	...	...	...	...	...	...	...	3·71
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2,443	432	158	...	...	...		...	320,900	84·85	4·88	1·91	0·73	0·12	0·04	...	...	...	...	...	92·54
629	1,351	47	...	...	...	...	...	37,636	9·27	1·68	0·43	0·20	0·43	0·01	...	...	...	...	...	11·97
...	...	...	...	...	...	...	...	94	0·03	...	...	...	...	...	...	...	...	...	...	0·03
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	47	...	...	...	...	...	...	141	0·01	0·01	...	...	0·01	...	...	...	...	...	...	0·03
...	...	...	...	...	...	...	...	94	0·03	...	...	...	...	...	...	...	...	...	...	0·03
...	...	...	...	...	...	...	...	282	0·03	0·03	0·03	...	...	...	...	...	...	...	...	0·09
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	503	0·16	...	...	...	...	...	...	...	...	...	...	0·16
283	94	...	...	...	...	...	...	78,701	24·60	0·14	0·18	0·09	0·03	...	...	...	...	...	...	25·04
...	...	...	...	...	...	...	...	47	...	0·01	...	...	...	...	...	...	...	...	...	0·01
...	47	...	...	...	...	...	...	94	...	...	0·01	...	0·01	...	...	...	...	...	...	0·02
...	47	...	...	...	...	...	...	47	...	...	...	...	0·01	...	...	...	...	...	...	0·01
283	47	...	...	...	...	...	...	15,543	4·06	0·39	0·39	0·09	0·01	...	...	...	...	...	...	4·94
...	47	...	...	...	...	...	...	707	0·11	0·07	0·03	...	0·01	...	...	...	...	...	...	0·22
...	...	...	...	...	...	...	...	107,033	33·90	0·34	0·10	...	...	...	...	...	...	...	...	34·34
...	...	...	...	...	...	...	...	7,229	2·30	...	...	...	...	...	...	...	...	...	...	2·30
...	...	...	...	...	...	...	...	23,257	6·04	0·78	0·03	...	...	...	...	...	...	...	...	7·40
...	...	...	...	...	...	...	...	8,816	2·79	0·01	...	...	...	...	...	...	...	...	...	2·80
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,195	1,680	47	...	...	...	...	...	281,123	83·23	3·36	1·20	0·38	0·51	0·01	...	...	...	...	...	89·39
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
168	...	...	...	...	...	...	...	1,011	0·33	0·44	0·33	0·22	...	...	...	...	...	...	...	1·32
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
84	...	...	...	...	...	...	...	168	...	...	0·11	0·11	...	...	...	...	...	...	...	0·22
108	...	...	...	...	...	...	...	28,033	35·56	0·77	0·33	0·22	...	...	...	...	...	...	...	36·88
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	1,012	1·22	0·11	...	...	...	...	...	...	...	...	...	1·33
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	337	0·44	...	...	...	...	...	...	...	...	...	...	0·44
...	...	...	...	...	...	...	...	4,812	6·00	0·22	0·11	...	...	...	...	...	...	...	...	6·33
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
420	...	...	...	...	...	...	...	35,373	43·55	1·54	0·88	0·55	...	...	...	...	...	...	...	46·52

Detailed Account of the Reserved State

Area of block.	Boundaries.	Description of forest.	Line of export.	Villages in Block. Number.	Villages in Block. Number of inhabitants.	Area surveyed.	Percentage of total area surveyed.	Species of tree.	Under one cubit.	1 & 2	2 & 3
Acres 907; square miles 1·43.	Block 37, *situated in Tuppeh Bares.*					Acres.					
	North.—The Myla nuddy until its junction with the Boojooha nuddy; then for a short distance up the same. *East and South.*—The boundary between the Bukoreeya and Agurdheemudumiya mouzahs; then along a demarcated nuddy until reaching the Lumka nuddy; then a demarcated line running west, until reaching the boundary between Bukoreeya and Pipra mouzahs. *West.*—The boundary between the Bukoreeya and Pipra Kalan mouzahs.	Valueless at present as regards timber, there being only a few *karam* trees of any dimensions. Bamboos are certainly the most valuable part of the block at present; *khair* and *seeda* are the trees of most frequent occurrence, but none of them are of any valuable dimensions.	Daltonganje road.	None ...	None	30	3·3	Asan ...	154	.....	.....
								Gamhar ...	.....	30	.....
								Garso ...	.....	.....	.....
								Ginyan ...	1,118	1,088	60
								Jamun ...	.....	.....	.....
								Jamti ...	.....	.....	.....
								Khana ...	.....	30	.....
								Karam ...	483	515	544
								Khair ...	46,740	1,511	1,026
								Kumbi ...	.....	.....	.....
								Kusum ...	.....	.....	.....
								Mahwa ...	.....	.....	.....
								Paras ...	785	181	121
								Persar ...	.....	.....	.....
								Sakwa ...	.....	.....	.....
								Seeda ...	4,172	30	.....
								Dowta ...	816	322	60
								Then ...	.....	.....	.....
								Sissu ...	.....	.....	.....
								Total ...	54,298	3,775	1,811

Forests in the Palamow Forest Division.—(Concluded.)

CONTENTS OF BLOCK.

Total amount of material in block.								Total.	Total amount of material per acre.											Total.
Between									Under one cubit.	Between										
3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12			1 & 2	2 & 3	3 & 4	4 & 5	5 & 6	6 & 7	7 & 8	8 & 9	9 & 10	11 & 12	
Cubits.										Cubits.										
.....	.....	.....	...	...	...	...	...	154	0·17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·07
.....	.....	...	...	...	...	...	...	30	.....	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·03
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	...	...	...	...	...	2,206	1·23	1·20	0·07	0·03	.....	.....	.....	.....	.....	.....	.....	2·53
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	30	.....	...	...	...	...	...	60	.....	0·03	.....	0·03	.....	.....	.....	.....	.....	.....	.....	0·06
453	121	.....	...	...	...	...	...	2,114	0·53	0·57	0·60	0·50	0·13	.....	.....	.....	.....	.....	.....	2·33
211	.....	.....	...	...	...	...	...	49,488	51·53	1·67	1·13	0·23	.....	.....	.....	.....	.....	.....	.....	54·56
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	...	...	...	...	...	30	.....	.....	.....	0·03	.....	.....	.....	.....	.....	.....	.....	0·03
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	.....
.....	30	.....	...	...	...	...	...	1,117	0·97	0·20	0·13	.....	0·03	.....	.....	.....	.....	.....	.....	1·23
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	...	...	...	...	...	4,272	4·60	0·03	.....	0·03	.....	.....	.....	.....	.....	.....	.....	4·66
.....	.....	.....	...	...	...	...	...	1,268	0·90	0·43	0·07	.....	.....	.....	.....	.....	.....	.....	.....	1·40
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
754	181	.....	...	...	...	...	...	60,789	59·83	4·16	2·00	0·82	0·19	.....	.....	.....	.....	.....	.....	67·00

List of trees observed in Palamow State Forests.

Current number.	Local name.	Systematic name.	Name of family.	REMARKS.
1	Agas	Melia Azadirachta	Meliaceæ	Planted only and only found in villages; fruits edible.
2	Am	Mangifera indica	Anacardiaceæ	The mango tree.
3	Amaltas (Danras) ... / Bonurlati ... ... / Bonurlaurie	Cassia fistula	Leguminosæ	Tree attaining 2 feet in diameter; fruits used medicinally; wood used for carts, rice-pounders, and bullock "jotes." The flower of the Danras is called the Amaltas.
4	Amera	Ficus glomerata	Urticaceæ	Tree; fruits edible.
5	Amti	Embelia robusta	Myrsineæ	Small tree; maximum diameter 9 inches; leaves used medicinally.
6	Antonni	... ...	.....	Small tree; useless.
7	Arar	Randia dumetorum	Rubiaceæ	A creeper 9 inches in diameter; two species, white and red arar; red used for killing fish, otherwise useless.
8	Arundi	... ...	.....	Small tree 1 inch in diameter. Useless.
9	Asan (Peroea) ...	Terminalia tomentosa	Combretaceæ	Big tree; wood extensively used and highly prized. Tusser silk tree.
10	Aura	Emblica officinalis	Euphorbiaceæ... ...	Medium tree, not exceeding 2 feet in diameter; used for building purposes; fruits edible.
11	Bael	Aegle marmelos	Rutaceæ	Big tree, attaining 8 feet in diameter; wood used for houses, windows, and door frames; fruits edible. Wood apple tree.
12	Bahira	Terminalia bellerica	Combretaceæ	Big tree, attaining 4 feet in diameter; wood light; fruits yield an oil, which is used medicinally.
13	Bans (Bukhar) ...	Bambusa stricta	Gramineæ	A small bamboo, used extensively and largely exported.
14	Bansa	Quercus dilatata	Cupuliferæ	Big tree; generally useful and much prized.
15	Baroon	Cræteva religiosa	Capparidaceæ	Tree of moderate size and rarely met with.
16	Baroonga	... ...	.....	Tree rarely met with; found in or near villages
17	Bauar	... ...	.....	Tree attaining 3 feet in girth; used for "jotes" for bullocks.
18	Bawat	... ...	.....	Small tree.
19	Belwa	Semicarpus Aanacardium ...	Anacardiaceæ	Marking-nut tree, attaining 1 foot diameter used for churns and butter utensils.
20	Bellonian	... ...	.....	Tree attaining 18 inches diameter; used in buildings, furniture, and bedsteads.
21	Béri	Caseœria tomentosa.	.....	
22	Bijaya, Persar or Bees	Pterocarpus marsupium ...	Leguminosæ	Large tree; very valuable timber; much prized for all uses.
23	Bindoo	... ...	.....	Creeper; 4 to 6 inches in diameter; used sometimes in making ropes.
24	Bir	Ficus Benghalensis	Urticaceæ	Big tree; fruits edible.
25	Biro	Zizyphus Jujuba	Rhamnaceæ	Tree attaining 2 feet diameter; fruits edible; wood not used.
26	Birhool	... ...	.....	Big tree, 2 feet diameter; yields an oil.
27	Búrkhur	... ...	.....	Big tree, attaining 3 feet diameter; used for sword handles.
28	Buri Gambar	Gmelina arborica	Verbenaceæ	Medium tree.
29	Byro	... ...	.....	Big tree; used for ploughs.
30	Chumerberi	... ...	.....	Attains 1 foot diameter.
31	Dudowl	... ...	.....	Small tree.
32	Dehri	... ...	.....	Ditto.
33	Dowie, Phul Dowl ...	Woodfordia floribunda ...	Lythrarieæ	Small tree; used in the "hur" of the plough.
34	Dowta, Dhow	Conocarpus latifolia	Combretaceæ	Large tree; wood highly prized; hard and durable; generally useful.
35	Dumar, Guler	Ficus glomerata	Urticaceæ	Big tree; fruits edible; wood not used.
36	Dunbire, Danras ...	Cassia fistula	Leguminosæ	
37	Durang	... ...	.....	Creeper; 9 inches in diameter.
38	Gambar	Gmelina arborea	Verbenaceæ	Big tree; used for making scales, dishes, palkis, wooden shoes, rice dishes.
39	Garso, Pohal	Albizzia Lebbek	Leguminosæ	Big tree; bark used for killing fish.
40	Gato	... ...	.....	Big tree; attaining 3 feet diameter; used sometimes for buildings and ploughs.
41	Ginyan	Odina Wodier	Thorebenthaceæ ...	Big tree, attaining 5 feet diameter; used in extinguishing fires; also gunstocks.
42	Girhul	... ...	.....	Small tree; 9 inches in diameter; fruits edible; roots used medicinally.
43	Gorar	... ...	.....	Creeper; has a peculiar smell; used for killing fish.
44	Guggedhi	... ...	.....	Small tree.
45	Gulgul	Cochlospermum Gossypium ...	Bixineæ	Big tree; useless.
46	Gundiari	... ...	.....	Small tree.
47	Gurag	... ...	.....	Ditto.
48	Guri	... ...	.....	Big tree.
49	Guri karam	... ...	Rubiaceæ	Big tree; used for building, roofs, windows, and doors, &c.
50	Hurdy	Adina cordifolia	Rubiaceæ	Big tree; 2 feet diameter; used for bullock "jotes."
51	Hurré	Terminalia chebula	Combretaceæ	Big tree, attaining 4 feet diameter; used in building, also for roofs; fruits used medicinally.
52	Imli	Tamarindus indica	Leguminosæ	Preserved for the fruits' sake.
53	Jamti	Eugenia operculata	Myrtaceæ	Big tree; used generally for building; also for carts.
54	Jamun	Eugenia Jambolana	Mytaceæ	Tree; wood somewhat prized; used for "jummotes" in wells; fruits edible.
55	Kachnar	Bauhinia variegata	Leguminosæ	Big tree; fruits edible.
56	Kacksi	Ficus	Urticaceæ	Small tree; useless.
57	Kadahar	Artocarpus integrifolia ...	Ditto	Jack fruit tree; only seen about villages.
58	Kadamti	... ...	.....	Small tree; leaves used medicinally.
59	Kadmauli	Bauhinia tomentosa	Leguminosæ	Tree; 18 inches diameter; used for rope-making.
60	Kahua	Terminalia glabra	Combretaceæ	Big tree; wood hard; much prized for windows, ploughs, houses, posts, carts; generally useful.
61	Kaj, Kaji	... ...	Urticaceæ	Medium tree; 2 feet in diameter; useless.
62	Kakoor, Guti	Zizyphus Xylopyrus	Rhamneæ	Medium tree; useless.
63	Karam	Nauclea cordifolia	Rubiaceæ	Large tree; timber generally useful.
64	Karaunda	Carissa carandas	Apocyneæ	Tree; used for bullock "jotes."
65	Karaunji	Pongamia glabra	Leguminosæ	Big tree; found in or near villages.
66	Kari	Capparis aphylla	Capparideæ	At times big; sometimes used in building.
67	Keowti	... ...	.....	Small tree and seldom seen.
68	Katahul	... ...	.....	Medium tree; 2 feet diameter; fruits yield an oil.
69	Kathpan	... ...	.....	Small and rarely seen.
70	Kutile	... ...	.....	Medium; fruits edible.
71	Kaunji	... ...	.....	Big tree; used medicinally; also for ropes.
72	Kékur	... ...	.....	Big tree; not used.
73	Khair	Acacia catechu	Leguminosæ	Very few big specimens seen; catechu; rice-pounders

List of trees observed in Palamow State Forests.—(Continued.)

Current number.	Local name.	Systematic name.	Name of family.	REMARKS.
74	Khaur (Lapua) ...	Acacia ferruginea	Leguminosæ	Big tree; used for carts, windows, ploughs, houses.
75	Kierna	... ...	... ...	Small tree; useless.
76	Koinar	Bauhinia	Leguminosæ	Tree; leaves, fruits, and flowers edible (?)
77	Korea	Phyllanthus nepalensis ...	Euphorbiaceæ... ...	At times of some size; useless.
78	Kumbi	Careya arborea	Myrtaceæ	Big tree; timber not used; but bark used for firing native fowling pieces; used also for poisoning fish.
79	Kurhud	... ...	... ...	Medium tree.
80	Kurhur	Ficus Cunia	Urticaceæ	Medium tree; 2 feet diameter; used for the fastenings of bullock packs.
81	Kurkut	... ...	... ...	Tree; useless.
82	Kusum	Schleichera trijuga	Sapindaceæ	Large tree; yields best lac; timber prized for rice-pounders, oil and sugar-crushers.
83	Mahwa	Bassia latifolia	Sapotaceæ	Big tree; flowers used for preparing spirit; nut yields an oil; wood suitable for houses but never cut.
84	Lodh	Symplocos racemosa	Styraceæ	Small tree; yields a dye.
85	Maulan	Argyreia speciosa	Convolvulaceæ ...	Creeper; used for ropes; leaves used for dishes, also for firing guns.
86	Medh	Tetranthera laurifolia	Laurineæ	Big tree; bark used medicinally.
87	Mohun (Mouna) ...	... ...	... ...	Tree; fruits used medicinally and for poisoning fish.
88	Moonjnee	... ...	... ...	Small creeper; yields an oil.
89	Newar	Euonymus tingens	Celastrineæ	Tree.
90	Nim	Nelia indica	Meliaceæ	Big tree, not common; leaves prized.
91	Oudel	Sterculia villosa	Sterculiaceæ	Big tree; very rare.
92	Pakor	Ficus infectoria	Urticaceæ	Medium tree.
93	Panapoti	... ...	... ...	Moderate sized tree.
94	Panpar	... ...	... ...	Medium tree.
95	Panrar	... ...	... ...	Medium to big tree; fruits edible.
96	Paras	Butea frondosa	Leguminosæ	Big tree; yields lac.
97	Perar	... ...	... ...	Medium tree, fruits edible.
98	Phurhud	... ...	... ...	Three inches diameter; used for sword handles.
99	Piar	Buchanania latifolia	Anacardiaceæ	Large tree; fruits edible.
100	Pipur (Puki)	Ficus religiosa	Urticaceæ	Big tree; fruits edible.
101	Pirtool	... ...	... ...	
102	Pitour	... ...	... ...	One foot in diameter; useless.
103	Pokré	... ...	... ...	Small tree.
104	Popra (Pupurwut) ...	Gardonia latifolia	Rubiaceæ	Tree; 2 feet diameter; useless.
105	Poto	... ...	... ...	Medium tree; useless.
106	Poto Damun	Grewia vestita	Tiliaceæ	Tree; 1 foot diameter; used for furniture and bedstead.
107	Potwan	... ...	... ...	Nine inches diameter; used for killing fish.
108	Poro	... ...	... ...	Small tree.
109	Pukri	... ...	... ...	Ditto.
110	Purdowan	... ...	... ...	Medium tree; used for bedsteads and furniture.
111	Putta	... ...	... ...	Small tree; useless.
112	Rangpauan	... ...	... ...	One and a half inches diameter; useless.
113	Raten, Rater	... ...	... ...	Medium tree; useless.
114	Rohun	Soymida febrifuga	Meliaceæ	Medium tree.
115	Roweti	... ...	... ...	Small tree.
116	Ruri	... ...	... ...	Two feet diameter.
117	Ruttengurura	... ...	... ...	Two feet diameter; used for house building.
118	Sakwa	Shorea robusta	Dipterocarpeæ ...	Big tree; generally useful; yields a resin.
119	Sali, Sajwan	Boswellia thurifera	Ochnaceæ	Big tree; used for rice dishes; useless for fire-wood until after being cut two years.
120	Sanar	... ...	... ...	Tree; wood not much used.
121	Seeda	Lagerstrœmia parviflora ...	Lythrariæ	Big tree; bedsteads, chairs, "jotes," also in building.
122	Sij	Euphorbia Nivulia	Euphorbiaceæ ...	Found up to 2 feet in diameter; used for bird-lime.
123	Sikot	... ...	... ...	Nine inches diameter.
124	Simur, Pagun	Bombax malabaricum	Malvaceæ	Large tree; cotton tree; cotton used for bullock pads; wood used sometimes in building.
125	Sissir	... ...	... ...	Medium tree.
126	Sissoo	Dalbergia sissu	Leguminosæ	A few fine trees; generally prized.
127	Sonaputta	... ...	... ...	One foot diameter.
128	Sonnen, Ponnen ...	... ...	... ...	Medium; houses, bedsteads, &c.
129	Sumalhar	... ...	... ...	Small tree
130	Surrookbedh	... ...	... ...	Two feet in diameter; gunstocks and buildings.
131	Tetra	... ...	... ...	Medium tree.
132	Towar	Bauhinia	Leguminosæ	Big tree; used in building.
133	Thaila	... ...	... ...	Small tree.
134	Then (Chirchiri) ...	Diospyros tomentosa	Ebenaceæ	Large tree; used for gunstocks, furniture, carts, and all purposes.
135	Tilai	Wendlandia exserta	Rubiaceæ	Small tree.
136	Tuni	Cedrela toona	Meliaceæ	Tree very rarely seen; used for gunstocks.

W. JOHNSTON,

Asst. Conservator of Forests.

W. H. D'C.—Regr. No. 4609—600—20-9-76.

FINANCIAL DEPARTMENT.

FORESTS.

CALCUTTA, THE 26TH SEPTEMBER 1876.

RESOLUTION.

READ—

The Progress Report of Forest Administration in Bengal for the year 1875-76.

The rapid progress which is being made in the development and working of the Forest Department in the Lower Provinces is shown by the increased importance attached in this report to the more advanced stages of forest conservancy. Two years ago, the principal work of the department consisted in the examination of forest tracts with a view to the formation of reserves. In the report of last year, the most prominent feature was the progress made in setting aside selected tracts as reserved forests. In the present report, though it appears that considerable further additions have been made to the reserved area, the topic of principal interest is the improvement and working of the forests, and in future years these sections of the report will be of still greater importance than at present.

2. The preliminary inspection work of the year has been confined to three tracts: the fir forests on the western boundary of the Darjeeling district, the forests of pergunnah Rhotas in the Shahabad district, and a block of sal forest in the Sonthal Pergunnahs. Of these, the two last have been gazetted as Government reserves after the close of the year. The fir forests in Darjeeling are not the property of Government, but belong to Cheeboo Lama; the timber is of inferior quality, and there are no facilities for transporting it, so that the tract could not, under any circumstances, be profitably worked. But it is of importance to check the denudation of these slopes on grounds connected with climate, with water-supply, and with the prevention of landslips. It is not proposed to take these forests under the direct charge of the department; but to use the influence of Government in inducing the proprietor to adopt some simple measures of conservancy. The forest tracts in pergunnah Rhotas and in the Sonthal Pergunnahs contain at present little mature timber, as the larger trees have been destroyed by indiscriminate cutting; but their situation makes it probable that they will prove extremely valuable hereafter, as there are excellent means of carriage both by land and water.

3. The forests still remaining for exploration in Bengal are of no great importance. It may be desirable to reserve some additional areas in the Chota Nagpore province. Of the other forests noticed in the 18th paragraph of the Conservator's report, the most considerable is the Mudhoopore jungle in Mymensingh; but no part of this is the property of Government.

4. The progress made during the year in the formation of reserved State forests is tabulated by the Conservator as follows:—

DIVISIONS.	IN SQUARE MILES.			REMARKS
	Area at the beginning of the year 1875-76.	Area added during the year.	Total at the end of the year 1875-76.	
Darjeeling ...	106	.....	106	
Julpigoree ...	129	30	159	
Palamow ...	....	151	151	
Sunderbuns ...	885	314	1,199	
Chittagong ...	347	223	570	
Singbhoom ...	.....	400	400	Rough estimate.
Total ...	1,467	1,118	2,585	

It will thus be seen that two new divisions, Palamow and Singbhoom, were formed in course of the year, and that the reserved area was increased by 1,181 square miles. These figures do not include the Shahabad and Sonthal Pergunnahs reserves, which were gazetted after the year had closed.

5. In the Julpigoree division the Apalchand reserve, of 30 square miles, was gazetted in September 1875. It is situated on the left bank of the river Teesta, about 15 miles above the town of Julpigoree. The forest consists principally of sal, sissu, and khair: there is a great demand for timber in the neighbourhood, and any surplus can readily be floated down the Teesta to the Berhampooter. The details of the working plan of this reserve have not yet been completed.

6. The Palamow reserve was gazetted in August 1875. A detailed account of this reserve, with a list of the trees found in it, is given in Appendix A to the Conservator's report. The greater part of the tract is covered with sal forest, but there are at present few trees of large dimensions, and the reserve will require a rest of some years before any regular system of cutting can be introduced. There is convenient water-carriage for the produce of this reserve by means of the river Kool, which falls into the Ganges not far from the town of Arrah.

7. In the Soonderbuns division an additional block of 314 square miles was gazetted in August 1875, principally with the object of obtaining a well-defined natural boundary for the reserved tract. But the experience of a few months showed that this object could not really be attained unless the Soonderbuns of the Satkhira sub-division in the 24-Pergunnahs were added to the reserve, and this was accordingly done after the close of the year The Conservator has recommended that the whole of the unleased area of the Soonderbuns should be placed under the Forest Department, and such a measure would no doubt make the duty of protection and supervision easier than it is at present. But the Lieutenant-Governor is of opinion that the public convenience requires that the reserved tract should be limited to the smallest area compatible with the effectual preservation of the valuable soondri timber: and he would be unwilling to enforce any restrictions which are not shown to be necessary to the accomplishment of this object. It is therefore probable that no further additions will be made to the reserved area in the Soonderbuns.

8. In the Chittagong division, the Metamahari reserve of 223 square miles was gazetted in June 1875. The two most valuable trees in this reserve are the gurjan and the jarul, both of which species were in imminent danger of extinction from reckless cutting. The forest produce of the reserve will be taken down the Metamahari river to the regulation district of Chittagong; but a detailed working plan has not yet been prepared.

9. A new division has been formed in the Singbhoom district of the province of Chota Nagpore, consisting of about 400 square miles of the Government estate known as Sarunda Pir, situated between the Brahminee and Byturnee rivers. The reserve was gazetted in August 1875. The principal tree is the sal, and as the forest has not been much injured by cutting in past years, an immense number of magnificent specimens of this tree are to be found in the reserved area. There is not at present much local demand for timber, but there is water communication with Cuttack, and as the reserve is situated on a straight line between Calcutta and Bombay, it may hereafter become extremely valuable in the event of direct railway communication being opened between those two places. The demarcation of this tract has not yet been completed.

10. Under the heading of protection and improvement the Conservator reports that 30 prosecutions were instituted during the year against 73 persons. In 22 cases convictions were obtained against 41 persons, seven cases were dismissed, and one was pending at the close of the year. In the Soonderbuns reserve many cases in which the rules were infringed were suffered to pass without the prosecution of the offenders, as in past years the forests have been open to the public, and the Conservator was anxious that the new regulations should not be enforced in any way which might produce

inconvenience or hardship to the boatmen and wood-cutters engaged in the traffic. The orders of the Conservator on this point have the entire approval of the Lieutenant-Governor.

11. It is remarked in the report that a special Forest Act for Chittagong is still under consideration. But it is understood that the Government of India have it in contemplation to amend Act VII of 1865 by an enactment which will be of general application; and if this is done, it will not be necessary to pass a special law for Chittagong.

12. Considerable progress has been made during the year in the demarcation of boundaries, especially in the Julpigoree and Chittagong divisions. The measures taken for the protection of the forests from fire were only partially successful, a result which is attributed to the specially dry weather which prevailed during the early months of 1876. In the Darjeeling division, the clearing of a fire-path 50 feet broad, and the employment of special patrol parties, proved ineffectual to protect the Sivok and Muraghat forests. The extreme difficulty of saving plantations from destruction by fire in dry weather is graphically illustrated by an anecdote given in the report, which describes how a nursery in the Bamunpokri plantation in Darjeeling was entirely destroyed by a burning leaf, which dropped upon it in the presence of three officials of the Forest Department, whose utmost efforts were unable to master the conflagration which immediately burst forth.

13. Several new roads have been constructed during the year in the Julpigoree and Darjeeling divisions. In Palamow it is stated that the existing roads are sufficient, and in the Soonderbuns and Chittagong the communication is by water. A number of rest-houses have been erected for the accommodation of officers in charge of the reserves, and for the reception of inspecting officers on tour. The total expenditure on buildings and offices amounted to Rs. 3,913.

14. The area of the plantations has been increased from 427 acres to 490 acres during the year. The teak plantations in Chittagong are reported to be very promising. An important experiment is being made in the Darjeeling division, in the rearing of a number of seedlings of the *ficus elastica*, which are stated to be doing well. A small bamboo plantation has been laid out in the same division by order of Government, with the object of ascertaining whether the bamboo can be successfully cultivated as a material for the manufacture of paper. In the Soonderbuns an area of 100 acres has been set aside for the experimental cultivation of the baobab, but the seedlings were not actually planted till after the close of the year under review. The Deputy Conservator expresses some doubt whether the locality will be found suitable for a fair trial of the experiment.

15. The paragraphs of the report which treat of the yield of the forests show that 77,296 cubic feet of timber were brought to depôt during the year, against 54,320 cubic feet in the previous year. There was, however, a falling off in the quantity sold, owing to the fact that most of the timber removed from the Buxa reserve reached the depôt towards the close of the year. It is satisfactory to find that the net profit to Government on timber sold has increased in the Darjeeling division from 5 annas 10 pie to 6 annas 3 pie, and in the Julpigoree division from 6 annas 11 pie to 9 annas 4 pie per cubic foot. A large number of narrow-gauge sal sleepers were supplied from the Darjeeling division to the Northern Bengal State Railway. The Government timber operations were confined to the three divisions of Julpigoree, Darjeeling, and the Soonderbuns; but besides these a large quantity of material in the above three divisions and in Chittagong was removed from the forests by private persons under licenses and on payment of fees. In Palamow no working operations were undertaken, as the forests require rest; but there were some small receipts on account of minor forest produce.

16. The plan which has been adopted for the management of the Soonderbuns division is described in detail in the report. Seven revenue stations were established, but this number proved to be insufficient, and three more

stations have since been added. Boats entering the reserve for the purpose of removing forest produce are required to take out permits at the station, and to pay tolls according to the maundage of the boat and the description of material taken. The first permit was issued on the 11th December 1875, and the full number of seven stations was not completed till the 5th February 1876; so that the division was actually in working order for only about two months of the year. But the returns show that during this period 4,528 permits were issued to 5,321 boats; and that 16,43,434 maunds of forest produce were removed, the tolls upon which amounted to Rs. 29,000. Three-fourths of the whole quantity of produce consisted of firewood.

17. The tolls in the Soonderbuns have purposely been fixed at very low rates. The preservation of the soondri forests was the principal object with which the reserve was formed, and the rate on this wood is one anna per maund; but for all other descriptions of timber, fire-wood and minor produce, the toll is only one pice per maund. It appears from the returns that two-thirds of the entire receipts were derived from boats belonging to the Jessore district; but no doubt a large proportion of the produce was subsequently exported. Boats from Backergunge took 14,715 maunds of soondri timber, most of which was probably used for boat-building.

18. The receipts and expenditure of the year as conpared with those of 1874-75 give the following results:—

	Receipts.	Expenditure.	Surplus.
	Rs	Rs.	Rs.
1874-75 ...	1,85,914	98,654	87,260
1875-76 ...	1,98,274	1,39,086	59,188

It would thus appear that in 1875-76 there was an increase of Rs. 12,360 in the gross receipts, but that the expenditure increased by Rs. 40,432; so that the net surplus of the year was much smaller than that of 1874-75. These figures, however, which are only those of cash receipts and payments, do not correctly represent the real financial result of the operations of the department during the year. The actual value of the year's transactions, which is found by excluding from the account all items not properly belonging to the year, was Rs. 1,93,609, and the real cost of the year's transactions, calculated on the same principle, was Rs. 1,40,026, giving a balance of Rs. 53,583. To this is to be added a sum of Rs. 39,329, being the difference between the value of the stock in hand at the beginning and at the close of the year, and the net result of the year is thus shown to be Rs. 92,912, being an increase of Rs. 265 upon the net result of 1874-75, which was Rs. 92,647. The large increase in the value of the stock in hand is due partly to timber brought to depôt in the Julpigoree division, and not disposed of, and partly to the purchase of seven elephants during the year. There was a profit during the year on the operations of all the divisions except Palamow, in which (as has already been explained) it was not thought advisable to work the forests.

19. The Conservator anticipates that the surplus will rise to about Rs. 1,50,000 in the course of the next two years, but that much more than this cannot be expected for some time to come. The receipts for the current year in the Soondurbuns are estimated at Rs. 60,000, but there will be some necessary increase of expenditure.

20. The Lieutenant-Governor cannot close this review without again adverting to the remarkable development which the department has shown in the course of the last two years. At the end of the year 1873-74, the separation of the province of Assam had removed from the administration of this Government the principal tracts which were then under the charge of the department. There remained only the two divisions of Cooch Behar and Chittagong, and the entire reserved area amounted to a total of only 120 square miles. The present report shows six divisions already established, with a reserved area of 2,585 square miles. Five of these divisions are being worked at a good profit on the expenditure, and in future years a still larger surplus may be confidently looked for. But the immediate

pecuniary returns are of small importance, compared with the permanent benefit which these provinces will derive from the judicious protection of their principal forest areas. The primary work of the department is to afford this protection, and thereby to ensure a continuous supply of timber and other forest produce, which would speedily be destroyed if the consumption of it were altogether unchecked. It is perhaps not too much to say that there is no branch of the public service which confers a greater direct benefit on the country than the operations of the Forest Department.

21. The Lieutenant-Governor cordially acknowledges the energy and ability with which the Forest Department in Bengal has been administered by the Conservator, and he is glad that Dr. Schlich's services have lately been recognized by his promotion to a higher grade. The subordinate officers of the department are favourably noticed in the report. The Deputy Conservator, Mr. Home, deserves much credit for his efficient management of the difficult duties of the Soonderbuns division, and Mr. Johnston, Assistant Conservator, rendered good service in the examination of the new reserves in Shahabad and in the Sonthal Pergunnahs.

By order of the Lieutenant-Governor of Bengal,

H. J. REYNOLDS,

Offg. Secy. to the Government of Bengal.

No. 3125.

COPY, with 25 copies of the Report, forwarded to the Conservator of Forests for information.

No. 1326.

COPY, with 400 copies of the Report, submitted to the Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce.

No. 1327.

COPY, with a copy of the Report, forwarded to the Commissioners of the Cooch Behar, Chittagong, Chota Nagpore, Patna, Bhagulpore, and Presidency Divisions; also to the District Officers of Julpigoree, Darjeeling, Chittagong, Singbhoom, Lohardugga, Shahabad, Sonthal Pergunnahs, 24-Pergunnahs, Jessore, and Backergunge.

By order of the Lieutenant-Governor of Bengal,

H. J. REYNOLDS,

Offg. Secy. to the Govt. of Bengal.

CALCUTTA,
The 26th September 1876.

W. H.—Reg. No 7032—27-9 76

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN

BENGAL

FOR

1876-77,

By W. SCHLICH, Esq., Ph. D,
CONSERVATOR OF FORESTS:

WITH A REVIEW BY THE LIEUTENANT-GOVERNOR

AND

ORDERS BY THE GOVERNMENT OF INDIA.

1878.

CALCUTTA:

PRINTED BY THE SUPERINTENDENT OF GOVERNMENT PRINTING,
8, HASTINGS STREET.

No. 14F., dated Calcutta, the 7th January 1878.

From—The Officiating Secretary to the Government of India,

To—The Secretary to the Government of Bengal.

I AM directed to acknowledge the receipt of your endorsement No. 3585, dated the 29th October last, forwarding the annual report on Forest administration in Bengal for 1876-77, together with the review by His Honour the Lieutenant-Governor thereon, and to communicate the following observations and orders.

2. The area of the forests notified as reserved is given as 3,390 square miles, but this includes 100 square miles in Hazaribagh and the Sonthal Pergunnahs mentioned in paragraph 129 of the report, the retention of which as reserves appears to be doubtful. The whole of the reserves have not yet, however, been permanently demarcated, and it is reported that the boundaries of 806 square miles have still to be defined and marked out on the ground.

3. The Governor General in Council concludes from the report that the Conservator fully recognizes the necessity of establishing clearly-marked boundary lines, and trusts that he will impress upon all officers subordinate to him the necessity of maintaining these boundary lines and boundary marks in such a condition that they cannot be lost sight of or mistaken by the people living in the vicinity of the forests. Wherever the Forest Department attempts to enforce strict protection of the reserved Government forests, it is their first duty to separate these estates from the surrounding lands by unmistakeable boundaries. The preparation of a detailed record of boundaries, explained in paragraph 7 of the Conservator's report, is a necessary measure, which is prescribed in the Forest Department Code, and a statement of the progress made in the preparation of these records should be entered in each annual report.

4. It is satisfactory that a fresh start has been made in the matter of fire-protection. With reference to the Conservator's plan of planting thick belts of trees along the boundaries of the forests to be protected, attention is invited to what was said in paragraph 6 of the orders on the report for 1873-74, regarding the advantage of a dense cover overhead in keeping down the growth of grass. It may be for consideration whether it would not be a good plan to leave a broad belt untouched on the outside of all forests in Bengal intended to be protected against fire, and to permit no fellings within this outer belt.

As a commencement, a belt, 100 feet broad, has been planted with sâl along part of the boundary of the Buxa reserve; the progress of these sâl plantations in Bengal will be watched with interest.

6. The expediency of cultivating foreign trees in Bengal and making experiments generally is discussed in paragraphs 16 to 22 of the Conservator's report, and in paragraph 8 of His Honour's review. The Governor General in Council fully recognizes the necessity of concentrating the work of the Forest Department upon the formation, protection, and improvement of the Government Forest estates, and is disposed generally to agree with the Lieutenant-Governor's view, that it is a mistake to expend much money on attempts to introduce foreign trees; but experiments like that of the cultivation of teak and caoutchouc at Bamunpokri, and the experimental cultivation of bamboo, with the view to ascertain whether the production of shoots for the manufacture of paper can be considerably stimulated by any practicable means, will be most useful and instructive, provided they are undertaken under suitable conditions, and carefully conducted. Of course, if, as has only too often been the case in India, the cultivation of foreign trees is attempted in conditions of soil and climate under which there is no reasonable hope of their success, the time and money expended upon such experiments is wasted; but, on the other hand, the success in India of cinchona, coffee, the Australian Eucalyptus and Acacia, and of numerous important fruit trees of foreign origin, affords sufficient proof that the judicious introduction of foreign trees may be a great boon to the country.

7. Nor should the Conservator lose sight of the important fact which the past experience of Forest administration in India has demonstrated, that the

present demand for the timber, wood, and other forest produce yielded by the Government forests, is in the majority of cases limited to a few of the more durable and otherwise more valuable kinds of timber, and that Forest officers must not only maintain the existing forest reserves, but also promote the yield by them of a variety of useful products which will meet the requirements of the country and of export trade. It is one of the chief duties of the present Forest staff in India to devise means to increase the demand for the produce of the forests in their charge, and thereby to increase the usefulness of these Government estates.

8. If the figures of the report are correctly understood, the receipts and charges exhibited in the Chittagong Division are on account of unreserved forests, and those in all other Divisions are on account of reserved forests. Debiting the reserves with the whole of the Direction charges, the results stand as follows :—

	Reserves.	Unreserved Forests.	Total.
	Rs.	Rs.	Rs.
Receipts	1,56,747	65,654	2,22,401
Charges	1,85,480	26,209	2,11,689
Surplus	...	39,445	10,712
Deficit	28,733	...	...

The Conservator should be asked to state whether the figures have been correctly understood; and in future reports a return should be entered showing the receipts and charges of both reserved and unreserved forests.

The gross receipts, calculated upon 3,290 square miles of reserved forests in charge of the Forest Department, amount to Rs. 50 per square mile, or annas 1¼ per acre. This is as yet a very small yield, and, in spite of the impoverished state of many of these forests when taken charge of by the Forest Department, the outturn would doubtless be much larger if there were a uniform demand for all classes of timber, wood, and other produce yielded by the forests.

9. The distribution of receipts and charges under the three great heads of Departmental Timber Operations, Other Revenue, and Formation, Protection, and Improvement of the forests, recorded in paragraph 35 of the report, does not meet the views of the Government of India, as explained in the letter from this Department, No. 309, dated the 20th February last. What was meant was, that the distribution should be worked out in detail, and that the Conservator should endeavour to allot the establishment and general charges to these three great heads in accordance with the circumstances of the case. Doubtless the distribution given in the paragraph quoted throws too much expenditure on Departmental Timber Operations, and hence the return does not exhibit correct results. In each annual report a statement should be recorded exhibiting a correct assignment, as far as possible, of the establishment and general charges to the three heads indicated.

10. An attempt has been made in the following statement to show the quantity of timber brought to depôt on Government account, the outlay on account of it, the quantity sold, and the amount realized. The Conservator should report whether the figures have been correctly understood.

Year.	No. of Statement.	Brought to Depôt.		No of Statement.	Sold.	
		Cubic feet.	Amount paid.		Cubic feet.	Amount realized
			Rs.			Rs.
1874-75	27	58,060	21,748	26	65,917	45,530
1875-76	27	77,297	42,874	26	55,900	49,302
1876-77	58	149,354	76,538	57	59,873	44,915
Total ...		284,711	1,41,160		182,690	1,39,747

11. If the figures have been correctly entered, the outlay amounted to Rs. 50, and the realizations to Rs. 76 per 100 cubic feet. Considering that the outlay includes a due share of establishment charges, the result is favourable. It is suggested that statements drawn up on similar principles be recorded in every annual report, in order clearly to exhibit the average amount expended and realized on account of timber brought to depôt and sold on Government account during a series of years.

In the statements for 1876-77 a quantity of firewood and bamboo is included, the cubic contents of which are not given. As it is convenient to use the cubic foot as the unit in such calculations, the Conservator might endeavour to adopt an average rate whereby quantities of firewood and bamboos in Bengal may be expressed in cubic feet.

12. In paragraph 5 of His Honour's review the opinion is expressed, that the working of the Forest Department in Bengal is sufficiently encouraging to warrant a liberal scale of establishment. Any definite proposals which the Bengal Government may desire to submit in this respect will receive careful consideration by the Government of India.

The Governor General in Council gladly endorses the high commendation bestowed by His Honour upon Dr. Schlich, the Conservator.

FINANCIAL DEPARTMENT.

FORESTS.

DARJEELING, THE 27TH OCTOBER 1877.

RESOLUTION.

READ—

The Progress Report of Forest Administration in Bengal for the year 1876-77.

THE report is late in submission, the corrected proof having only been received in this office on the 29th of September. The delay appears to have been caused by the inability of the Account Department to forward complete statements of account before the latter end of August.

2. During the year 1876-77, 809 square miles of forest have been formally added to the Government reserves in tracts which had been carefully inspected in previous years. Only one fresh area was inspected during the year, viz. the Berhampore sâl forest in Dinagepore, and the result goes to show that it is not worth purchasing, all the valuable timber having been worked out, and the price demanded for the land being very high.

3. The total area of reserved forest in Bengal may thus be classified :—

	Square miles.
Sâl forests with savannah, mixed forests, and Lower Hill forests containing sâl	1,057
Khair and sissu forest	107
Upper Hill forest	75
Soondri forest	1,581
Chittagong mixed forest	570
Total ...	3,390

The Conservator remarks that the various reserves are so situated as to be able to supply with timber every district of this Government, except parts of the Patna and Bhagulpore divisions, which must for the present depend upon Nepal and Oudh.

4. The work of demarcation has gone on steadily during the year, 614 square miles having been completed, which brings up the total demarcated area to 2,735 miles. Of this, however, a part situated in Palamow will have to be gone over again, and the area actually remaining to be demarcated may be taken to be 806 miles. The important work of preparing accurate records of the boundary demarcation has not, the Lieutenant-Governor is glad to see, been neglected.

5. The forest staff for Bengal has been fixed by the Government of India at the following strength :—

1 Conservator,
3 Deputy Conservators,
6 Assistant Conservators,
1 Sub-Assistant Conservator,

which gives about one superior officer for every 300 square miles of reserve. This staff, with perhaps one additional officer, will, Dr. Schlich believes, be sufficient for some years to come if adequate subordinate establishment be provided. The scale of subordinate establishment has not yet been permanently settled, but the present cost, viz. Rs. 2,250 per mensem, is equivalent to an allowance of 13 annas per square mile monthly. The Conservator urges that at least one rupee per square mile monthly will eventually be required, or

a total monthly allowance of Rs. 4,500 for subordinate office, forest, and depôt establishments. Of this he would wish to have Rs. 4,000 allowed in 1878-79. The Lieutenant-Governor believes that the working of the Forest Department, as detailed in this report, is sufficiently encouraging to warrant the Government of India in allowing a liberal scale of establishment. It can never be financially expedient to leave an improving and paying department undermanned.

6. The boundaries of the reserves in Darjeeling and Julpigoree have had traces cut along them from 6 to 15 feet broad; besides which, roads have been made which will give access to 40 square miles of forest. Fourteen and a half miles of road have been made in Julpigoree. In the other divisions no work of this kind was required. The Conservator urges the advisability of opening up in the Darjeeling division the old riverside road along the Teesta from Sibhok. The Deputy Commissioner will be asked to report upon this matter; but it is understood that the cost of construction would be very great, and more than Government is perhaps warranted in spending until other more important frontier roads are completed.

7. The buildings required by the department have now been nearly all completed. Two forest bungalows are still required—one at Kalimpung in Darjeeling, and the other at Daltongunge in Palamow. These will have to be provided.

8. The area of new plantation was brought up to 524 acres during the year by the addition of 34 acres. These plantations are still to a great extent experimental. At Bamunpokri 153 acres are planted with teak, with a view to see if that valuable wood will thrive in the Terai. Similarly, experiments are being made with Spanish chestnuts in Darjeeling. The Lieutenant-Governor is disposed to think that it is a mistake to expend much money on attempts to introduce foreign trees. It is more useful and profitable to protect and cultivate the indigenous trees of the Bengal forests. Bamboo, for the purposes of paper-making, is being tried both in Darjeeling and the Soonderbuns; but the soil of the Soonderbuns is found to be too damp for bamboos. The *baobab* is also being tried in the Soonderbuns and has thriven so far. But Dr. Schlich is at one with Dr. King in holding that neither from baobab nor bamboo will a marketable material for paper ever be produced. The cost of production will always be more than the manufacturers will care to pay for the article. In Chittagong it has been arranged to plant 100 acres yearly with teak and toon mixed, and 171 acres have already been so planted.

9. In the Buxa reserves an important experiment is being made with a view both to propagate sâl and at the same time protect the forests from fire. A dense belt of young sâl trees 100 feet broad is being raised along the boundaries, and it is hoped that when these grow they will effectually protect the forests and any future young plantations inside the belt from the jungle fires which do so much damage in the forests of the Terai.

10. The subject of protection from fire is one of primary importance, and the Lieutenant-Governor is glad to notice that during the year 66,127 acres of forest were protected at a cost of only Rs. 1,546. The year was damp and favourable, but the result is matter for satisfaction.

11. Prosecutions were instituted for 233 breaches of forest rules (230 in the Soonderbuns alone), and convictions were obtained in 127 cases.

12. Financially, the working of the department is satisfactory and full of promise for the future, the receipts having risen from Rs. 87,260 in 1871-72 to Rs. 2,22,401 in 1876-77. The charges have of course been growing at the same time as the department developed and extended its operations, and stood at Rs. 2,11,689, against Rs. 67,506 in 1871-72. But while these have now nearly reached their maximum, and are not expected to exceed Rs. 2,30,000 for some years to come, the receipts of the current year 1877-78 are estimated to amount to three lakhs of rupees. Again, although the cash surplus at the close of 1876-77 amounted to only Rs. 10,712, the stock in the depôts was worth Rs. 76,756 more than that in hand at the close of 1875-76; the old timber in

depôt having been almost all sold off and the stock in hand consisting now chiefly of new and massive logs. The Lieutenant-Governor desires to impress upon the Conservator the importance of not sacrificing the good-will of the people to revenue considerations. Fees for grazing in the forests are, he fears, too high and give cause for irritation, and in some parts of the country the rules regarding the collection of minor forest produce are said to press upon the people. The Lieutenant-Governor has personally directed the attention of the Conservator to this subject.

13. Arranging the receipts and charges according to the instructions of the Government of India, Revenue, Agriculture, and Commerce Department, No. 309, dated 20th February 1877, the figures stand as follow:—

Receipts.			Charges.		Surplus.	Deficit.
		Rs.		Rs.	Rs.	Rs.
Departmental timber operations.	From wood brought to depôt by departmental agency. From confiscated, drift, and waif wood	46,101	Cost of timber operations by department and in recovering drift; half the total cost of departmental cattle, plant, and tools, and one-quarter of total cost of the establishment ...	76,538	.....	30,437
Other revenue ..	Revenue from wood removed by private purchasers, &c., from minor produce, and miscellaneous	1,76,300	Cost in connection with removals by private purchasers; collection of dues on minor produce; miscellaneous charges; quarter of total cost of departmental cattle, plant, and tools; and half cost of establishment ...	68,522	1,07,778	.....
Formation, protection, and improvement of forests.	.....	.....	Cost of forest organization; treatment and creation of forests; works for development of forests; quarter of total cost of cattle, plant, and tools; and quarter of cost of establishments	66,629	.....	66,629
	Total ...	2,22,401	Total ...	2,11,689	10,712	.....

14. The Conservator remarks, with reference to the comparatively unfavourable result of departmental operations as shown in the foregoing table, that against the apparent deficit of Rs. 30,437 must be set off Rs. 76,756, increased value of stock. He also urges that, as departmental operations for the removal and sale of timber are carried on in two divisions only out of five, the proportion of cost of establishment, &c., charged to this head of the statement is unduly great.

15. In the SECOND SECTION of the report each of the forest divisions is treated in detail. The area of the *Darjeeling division* is now 161 square miles, and proposals for adding 60 square miles are under consideration. The forests of this division are very varied in character, ranging from the toon and india-rubber of the moist valleys, through the sâl of the lower hills and the middle hill forests of chilauni, cherry, and birch, up to the oaks, chestnuts, and magnolias of the upper hills. All the joomeahs who resided within the reserved area have been induced to remove, compensation being awarded them on this account. The Lieutenant-Governor hopes that the compensation has been actually paid, and would wish to have a special report upon this point.

16. The timber operations in this division have been partly carried on by Government and partly by private purchasers. The departmental operations were in former years confined to bringing to depôt logs cut about 10 years ago. These have now been sold, and new timber-cutting has commenced. The total number of trees taken out in 1876-77 was 1,699, of which 689 were removed by the department. The cuttings were at the rate of 15 trees only per square mile. The receipts from departmental operations in this division were Rs. 33,647, and the charges Rs. 21,166; for "other revenue" the figures were—receipts Rs. 21,817, and charges Rs. 11,411; Rs. 22,909 were spent on forest conservancy.

17. In the *Julpigoree division* the reserved area is now 390 square miles. There are five chief classes of forest, viz. lower hill forest, sâl forest, savannah forest, mixed forest, and khair and sissu forest.

Some of these forests contain mature timber, and the Buxa reserve is said to be now capable of yielding 80,000 cubic feet of sâl and sissu per annum. But the greater part of the area stands in need of re-stocking. Most of the joomeahs within the tract have been induced to leave.

18. The financial working of this division stands thus—

	Receipts.	Charges.
	Rs.	Rs.
Departmental operations	11,174	30,800
Other revenue	4,360	10,284
Conservancy	.. ...	13,642
Total ...	15,534	54,726

The unfavourable result is due to heavy timber work and small sales. The stock in hand was, however, worth more by Rs. 71,219 at the close of the year than at the beginning. The sales were small, because the people of Eastern Bengal have a prejudice in favour of Nepal timber, which, it is hoped, the lower price of the Dooar supplies will soon effectually remove.

19. In the *Palamow division* there were at the end of 1876-77 188 square miles of reserve, including 37 square miles on the Kymore Range in Shahabad added during the year. There is some doubt as to the right of Government to the slopes of this range, and the tract is to be brought under settlement during the current cold season in order to determine the point and fix the limits of the neighbouring estates. The forests of this division have not been worked, as they are in a very reduced condition. For some years to come the working of this division is likely to entail a deficit, which, however, the Conservator does not expect to exceed Rs 10,000 per annum.

20. In the *Soonderbuns division* the total area of reserve is 1,581 square miles divided into three blocks: the Bagirhat block of about 500 square miles, which is a soondri reserve; and the Khoolna block (699 square miles) and Satkhira block (382 square miles) which are firewood reserves. Measures are under consideration (though not alluded to in the report) for bringing the remaining jungle area of Soonderbuns under the control of the Forest Department. The whole of the operations in this division are carried on by private purchasers under a system of passes or permits. During the year 13,999 boats entered the reserve and took away 4¼ million maunds of forest produce paying Rs. 84,073. Much produce was also taken away without payment, and steps have been taken to check this illegal trading. The charges of the year were Rs. 40,167. It is estimated that in 1877-78 the receipts will be over a lakh of rupees, and the charges Rs. 38,000 only.

21. The *Chittagong division* has an area of 570 square miles. None of the reserved area is at present worked for timber.

22. In the divisions of *Singbhoom, Hazareebagh, and the Sonthal Pergunnahs* the reserves have not yet been taken over by the department.

23. Section III of the report treats of *Unreserved or District forests.* The Forest Department is only concerned with such in the Julpigoree and Chittagong divisions. In the former there are now only 8 miles of open forest left, and it is intended to cut what timber is fit for cutting, and to leave the area for agricultural purposes. In the Chittagong division there are upwards of 5,000 square miles of open forest, over which the tribes of the Hill Tracts wander and joom. The management of these forests rests, therefore, with the civil officers of the district. The people take free of charge what is necessary for domestic purposes, and tolls are levied by the Forest Department on forest produce exported beyond the Hill Tracts boundary. Certain restrictions are also imposed by the Forest Department on the cutting of the more valuable kinds of timber. The receipts from tolls have fallen off from Rs. 1,13,196 in 1874-75 to Rs. 65,654 in the year of review. The cause of this has formed the subject of enquiry, and various reasons for it have been assigned by the local officers. Dr. Schlich is disposed

to hold that it is the result of purely temporary causes that the market became overstocked with material in 1874-75, and that the cyclone of 1876 and the subsequent epidemic of cholera prevented the revival of trade. The question of the rates levied upon the produce is under reference at present to the Commissioner of Chittagong.

24. On the whole, the working of the department throughout the year is both satisfactory and encouraging. The thanks of Government are due to Dr. Schlich for his intelligent and active supervision, and he seems to have been well and ably assisted by most of the officers working under his orders. The Lieutenant-Governor regrets the removal of Messrs. Home and Gamble from Bengal, and is sorry also to learn that since the close of the year Mr. H. H. Davis has been compelled by serious illness to proceed to Europe on leave.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

Secretary to the Govt. of Bengal.

No. 3584.

COPY, with 25 copies of the Report, forwarded to the Conservator of Forests for information.

No. 3585.

COPY, with 400 copies of the Report, submitted to the Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce.

No. 3586.

COPY, with copy of the Report, forwarded to the Superintendent of Forest Surveys.

Circular No. 45.

COPY, with copy of the Report, forwarded to all Commissioners.

No. 3587.

COPY, with copy of the Report, forwarded to the District Officer of Darjeeling, with a request that the report called for in paragraph 6 of the Resolution may be submitted.

Nos. 3588-97.

COPY, with copy of the Report, forwarded to the District Officers of Julpigoree, Lohardugga, Singbhoom, Hazareebagh, Chittagong, Sonthal Pergunnahs, 24-Pergunnahs, Backergunge, Jessore, and Shahabad.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

Secretary to the Govt. of Bengal.

CALCUTTA,
The 29th October 1877.

C. E. G.—Reg. No. 13640—31-10-77.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

LOWER PROVINCES OF BENGAL

FOR THE YEAR

1876-77.

BY

W. SCHLICH, PH.D.,

Conservator of Forests, Bengal.

Calcutta:

PRINTED AT THE BENGAL SECRETARIAT PRESS.

1877.

No. 65G., dated Darjeeling, the 1st September 1877.

From—Dr. W. Schlich, Conservator of Forests, Bengal,

To—The Secretary to the Government of Bengal, Financial Department.

I have the honor to submit herewith the annual administration report of the Forest Department for the year 1876-77.

2. The Accountant-General having continued to make adjustments in the accounts until the middle of August, I was unable to submit the report at an earlier date, and even now the greater part of it has been got ready in a hurry.

3. The report and the statements appended to it have been prepared in accordance with the rules laid down in the new Forest Code. Forms Nos. 54 and 59 have, however, not been given, as the necessary data were not available.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN BENGAL

For the Year 1876-77.

By W. SCHLICH, Ph.D.,

Conservator of Forests, Bengal.

SECTION I.—SUMMARY OF ADMINISTRATION DURING THE YEAR.

1.—Inspection of Forest.

With the view of selecting a certain area of state forests, the officers of he Forest Department devoted the greater part of their time, from 1872 until 876, to the examination of the different forest tracts in Bengal, and, based on .he information thus collected, an area of 3,390 square miles has been gazetted as Government reserved forests. There remained in 1876-77 only a few localities to be inspected, and of these one has been examined during that year, namely, the Berhampore sâl forest, situated in the Dinagepore district, close to the Northern Bengal State Railway. This forest was first brought to the notice of Government by the Engineer-in-Chief of the above-mentioned railway, who obtained a number of sâl sleepers from it. Owing to its position in the close vicinity of a railway, the question was entertained whether it would not be advisable to purchase the tract, and with the view of arriving at a conclusion on the subject, an examination by this department was ordered to be made. This has now been done.

2. The forest in question is estimated to extend over 19,468 acres, or about thirty square miles, and it is the property of sixteen different parties. About sixteen square miles may be called sâl forest, eight square miles mixed jungle, and six square miles are under cultivation. Valuation surveys, extending over 584 acres of sample areas, show the average contents of sâl per acre to be as follows:—

Per Acre.	Good and fit for timber.	Bad and unfit for timber.	Total.
Trees between 3′ and 4′ 6″ girth	0·085	0·474	0·559
Ditto 4′ 6″ and 6′ "	0·007	0·101	0·108
Ditto 6′ and 7′ 6″ "	0·003	0·010	0·013
Total .	0·095	0·585	0·680

These figures show that there is one tree of 3 feet girth and upwards for a little less than every two acres, and of these only one tree per every 9½ acres is fit for timber. It is evident, therefore, that the forest has been cleared out,

The general growth of sâl is reported as unfavourable, and as a high price would have to be paid for the land, it does not appear advisable for Government to buy the forest, especially as sâl timber can be delivered at Julpigoree, the present northern terminus, and soondry timber at Sara, the southern terminus of the railway, both from Government reserved forests.

2.—Area and Boundaries of Reserves.

3. At the beginning of 1876-77 the area of reserves amounted to 2,585 square miles, and during the year 809 square miles were added, so that the total has now been brought up to 3,390 square miles, which are distributed over the several divisions as exhibited in the following statement:—

Divisions.	Area in square miles.			Remarks.
	At the beginning of 1876-77.	Added during the year.	Total at the end of the year 1876-77.	
Darjeeling ...	106	55	161	
Julpigoree ...	159	235	390	
Palamow ...	151	37	188	
Sunderbuns ...	1,199	382	1,581	
Chittagong ...	570	.....	570	
Singbhoom ...	400	.....	400	
Hazareebagh ...	.....	60	60	
Sonthal Pergunnahs ...	.....	40	40	
Total ...	2,585	809	3,390	

4. Regarding their composition these forests may be classified thus:—

Divisions.	Sâl forests, with savannah, mixed forests, and lower hill forest containing sâl.	Khair and sissu forest.	Upper hill forest.	Soondry forest.	Chittagong mixed forest.	Total.
Darjeeling ...	79	7	75	.....	.....	161
Julpigoree ...	290	100	.....	.....	.....	390
Palamow ...	188	.....	.....	.....	.....	188
Sunderbuns ...	.....	.....	.....	1,581	.....	1,581
Chittagong ...	.....	.....	.....	.....	570	570
Singbhoom ...	400	.....	.....	.....	.....	400
Hazareebagh ...	60	.....	.....	.....	.....	60
Sonthal Pergunnahs ...	40	.....	.....	.....	.....	40
Total ...	1,057	107	75	1,581	570	3,390

5. From the forests of the Darjeeling and Julpigoree divisions produce can be taken down river to all Bengal districts from Purneah on the west to Tipperah on the east. From the Sunderbuns the produce can be taken up the different rivers to the districts of the Presidency, Burdwan, and Dacca divisions. The Chittagong forests supply the Hill Tracts, Chittagong, and part of Noakholly. The remainder of Noakholly is supplied from Hill Tipperah and the Sunderbuns. Sarunda can supply the south, the Palamow and Hazareebagh reserve the northern parts of Chota Nagpore, which, however, contains large areas of jungle outside the reserves. The requirements of the Sonthal Pergunnahs are found on the spot. With the exception of the Sonthal Pergunnahs and parts of Purneah, the Bhagulpore Commissionership has to rely on Nepal and Oudh for large timber. Of the Patna Commissionership, the southern portion is partly supplied from the forest in Palamow and on the Khymore range. The remainder of the division obtains timber from Nepal, Oudh, and the North-Western Provinces. Orissa has as yet large stores of timber of its own, and it can also be supplied from Sarunda by the Brahmuni river. Thus it will be seen that the Bengal forests can supply every district under this Government, with the exception of parts of the Patna and Bhagulpore divisions. What should be done by Government on the latter point will be discussed during the year 1877-78, after the Conservator has made a tour through the districts concerned.

6. Good progress has been made during the year in the *demarcation* of the reserves, as may be seen from the following table:—

Divisions.	Area demarcated, in square miles.			Balance remaining to be demarcated.	Total area of reserves.
	At the beginning of 1876-77.	During 1876-77.	Total at the end of 1876-77.		
Darjeeling	81·5	44·5	76	85	161
Julpigoree	169	148	317	73	390
Palamow	151	.....	151	37	188
Sunderbuns...	1,199	382	1,581	.....	1,581
Chittagong	570	.....	570	.....	570
Singhbhoom	.....	.....	... .	400	400
Hazareebagh	.....	.....	.....	60	60
Sonthal Pergunnahs	...	40	40	.....	40
Total .	2,120·5	614·5	2,735	655	3,390

The Rohtas forests in Palamow, area 37 square miles, were demarcated, but as the adjoining proprietors dispute the boundaries, the work is to be done again by a Settlement Deputy Collector.

The remaining Palamow forests were demarcated before the Forest Department took them over. Owing to certain changes made since the close of the year these arrears will have to be done again, so that in reality the area finally demarcated amounts to 2,584 square miles, leaving a balance of 806 square miles to be demarcated.

7. In 1875-76 a commencement was made towards the preparation of *boundary records*, comprising the following data:—

(1) A map of the boundaries on a scale of four inches to the mile, exhibiting each boundary post and its number.
(2) The angle from post to post.
(3) The distance from post to post.
(4) A description of each post.

During the year under review the work has been continued, so that the material for the records of most of the demarcated boundaries has been collected, and the maps are now under preparation.

3.—Protection and Improvement of Reserves.

8. *Establishment.*—In the re-organization of the superior establishment, as laid down in the Government of India, Department of Revenue, Agriculture, and Commerce's Resolution No. $\frac{30}{1073-1086}$, dated the 13th October 1876, the staff of superior officers for Bengal has been fixed at—

1 Conservator of Forests,
3 Deputy Conservators of Forests, and
6 Assistant Conservators of Forests,

to which one Sub-Assistant Conservator of Forests has been added, making a total of 11 superior officers, or about one for every 300 square miles of reserves. If, after another year or so, one more officer is added, the staff will probably be sufficient for some years to come, provided a liberal scale of subordinate establishment is agreed upon. Various scales have been submitted to Government, and some sanctioned; but as annually new areas were added to the reserves, there has been a permanent demand for an increased allowance. Hence it was considered best not to fix any special scale at all until the formation of reserves has been completed, and in the meantime to grant a lump sum per month. The amount allowed for 1876-77 and for 1877-78 amounts to Rs. 3,500 per mensem. The establishments of the Conservator's office and of the eight divisional offices cost, at a minimum, Rs. 950 per month, so that a balance of Rs. 2,550 remains for forest and depôt establishments, equivalent to an allowance of about 13 annas per square mile per month. It is estimated that the area of reserves will rise to 3,500 square miles during the year, and the Conservator is convinced that not less than one rupee per square mile per month will be sufficient to do justice to the protection and improvement of the forests, or a total monthly allowance of Rs. 4,500 for subordinate office, forest, and depôt establishments.

It is not necessary, however, that the full amount should be granted at once, and it will probably be sufficient if Rs. 4,000 per month are given in 1878-79, provided sanction is accorded to a gradual rise up to Rs. 4,500 per month.

9. *Surveys and working plans.*—No new surveys or working plans have been made during the year, as all the spare time of the officers has been taken up by demarcation work and the preparation of the boundary records.

10. *Roads and bridges*—Along the demarcated boundaries traces from 6 to 15 feet broad have been cut in Darjeeling and Julpigoree. In the former division, a bridle path from the Mohanuddi, across Latpanchor and Sittong, to Bherik, has been completed during the year, by constructing the last five miles, thus bringing the whole road up to a length of 15 miles. A branch road from this to Sibhok has been commenced, three miles having been made during the year. These roads make a hilly forest tract of about 40 square miles accessible; and all that is wanting now is that the Government should re-open the old road leading along the west bank of the Teesta from Sibhok up to the side of the new bridge under construction over that river. This road would not only open out large forest tracts, but it would also be a great boon to those who trade between Bhootan and Thibet on one side, and India on the other side. Traders from Thibet, after reaching the new Teesta bridge, have to ascend about 6,000 feet over a length of road of 17 miles to reach Darjeeling, and from Darjeeling it is an additional distance of 27 miles to the foot of the hills, or 44 miles in all. If, on the other hand, the Teesta valley road was re-opened, traders would reach the foot of the hills from the Teesta bridge by an almost level road about 16 miles long, thereby avoiding a distance of 28 miles and an ascent of 6,000 feet.

11. In the Buxa reserve, *Julpigoree* division, we have cut during the the year four new roads, measuring 14½ miles in length, thus bringing the total length of roads made in this reserve up to 40¾ miles.

In the other divisions no road works have been carried out during the year, as there was no necessity for them.

12. *Buildings.*—The existing buildings were kept in repair, and in addition the following have been erected:—

Julpigoree division.—(1) The forest house at Buxa has been completed: cost Rs. 1,000.

(2) A 2nd class rest-house at Alipore.

(3) A shed for two elephants at Alipore.

Sunderbuns division.—Two station houses were erected during the year.

Chittagong division.—An inspection bungalow was commenced during the year in the Sitapahar reserve: cost Rs. 500.

13. In obedience to the orders conveyed in paragraph 8 of the Government of India's letter No. 490, dated the 27th April 1877, to the Secretary to the Government of Bengal, the subjoined lists of buildings are given:—

(*a*)—*List of buildings for which rent is paid by forest officers.*

(1) The Julpigoree forest bungalow: cost Rs. 1,800: rent realized during the year Rs. 340. The monthly rent has now been reduced.

(2) The Buxa forest bungalow: cost Rs. 1,000: rent realized during the year *nil*, the first instalment having been realized in April 1877.

(*b*)—*List of rest-houses which have cost more than Rs.* 200 *each, and for the occupation of which no rent is paid.*

(1) The Bangbul plantation bungalow: cost about Rs. 500.

(2) The Bamunpokri plantation bungalow: cost Rs. 1,000.

(3) The Sibhok depôt bungalow: cost about Rs. 2,000.

(4) The Sitapahar plantation bungalow: cost Rs. 500.

All the other rest-houses cost less than Rs. 200 each.

14. We require a forest bungalow at Kalimpung in the Darjeeling district, and one at Daltongunge in Palamow. Each of these will cost at least Rs. 3,000; but the expenditure cannot be avoided, as no houses are available in these places.

15. *Reproductive measures.*—At the beginning of the year the area of plantations amounted to 490 acres. During the year 34 acres were added, so that we have now 524 acres planted. They are stocked in the following manner:—

Divisions.	Oaks, chestnuts, magnolias, and walnuts.	Conifers.	Spanish chestnut and toon.	Teak and toon.	Bamboos.	Baobab.	India-rubber.	Total.
	Acres.	Acres.	Acres.	Acres.	Acre.	Acre.	Acre.	Acres.
Darjeeling	144	42	3	153	1	.....	1	344
Julpigoree	.....	.....	.....	3	.....	.....	.....	3
Sunderbuns	.....	.....	.....	.....	.....	1	.....	1
Chittagong	.....	.....	.....	176	.....	.....	.....	176
Total ...	144	42	3	332	1	1	1	524

16. It can scarcely be said that planting operations in Bengal have emerged from the experimental stage. In Darjeeling, it is true, we have an oak and magnolia plantation of 144 acres, but, on the other hand, the teak plantation of 153 acres at Bamunpokri is entirely of an experimental nature—namely, to ascertain whether teak will thrive in the Terai. It is not intended to enlarge this plantation after the end of 1877-78, and in order to be on the safe side the teak has been mixed with toon, sissu, and sâl. The little plantation of Spanish chestnut has been raised of seed sent out by Her Majesty's Secretary of State for India. Until this year the seed generally arrived in very bad condition, so that only a few seedlings were obtained. This year, however, we have raised about 1,200 seedlings, so that we shall be able to make a good extension in 1878-79. The Spanish chestnuts are interplanted with toon.

17. The bamboo plantation has been established by the orders of Government to see how many shoots fit for the manufacture of paper stock an acre can yield.

18. An experimental bamboo plantation made in the Sunderbuns has entirely failed, the soil proving too wet for bamboos.

19. The experimental baobab plantation in the Sunderbuns has been made to ascertain whether that tree will grow in the Sunderbuns. The seedlings have done tolerably well so far.

20. Regarding the baobab plantation in the Botanical Garden at Howrah, Dr. King has sent the following extract from his annual report:—

"*Baobab.*—The young plantation of baobab, which at the suggestion of Dr. Hooker, Director of the Kew Garden, was made two years ago, is progressing, but it is too young yet to afford any data as to the possibility of cultivating baobab for a paper fibre with good financial results. My own opinion is that a plant yielding an annual crop of fibre is, for economical reasons, more likely to answer than one from which a crop can be collected only at distant intervals. Among the numerous Gramineæ and herbaceous Urticaceæ, and Malvaceæ abounding in the reserves under the charge of the Forest Department, there must be some which would yield, in sufficient quantity and at a low enough cost, a fibre suitable for paper. This matter is, I think, well worthy the attention of forest officers in all parts of India. Several of the wiry grasses so abundant on the sea-coast might also possibly furnish as good a fibre as the now practically exterminated esparto of Spain and Algeria."

21. The Conservator has no doubt whatever that neither the manufacture of paper stock from baobab or that from bamboos will be a success. Experiments recently made in the Central Provinces, where labour is cheap, prove that it will cost at least twice as much to produce the paper stock than paper manufacturers are willing to pay for it, and this irrespective of the original price of the bamboos.

22. What Dr. King says about the species of Gramineæ, Urticaceæ, and Malvaceæ deserves, no doubt, attention, but we really must establish our forest estates first before we proceed to such details. Indeed, we have lost too much time already to secure a permanent supply of the more important kinds of forest

produce as timber and firewood, and every success achieved in supplying a few paper mills with a new kind of paper stock will have to be paid for heavily by the foremost work of the department being deprived of the time and attention of the establishment.

23. In Chittagong arrangements have been made to plant annually 100 acres with teak and toon mixed. For this purpose 69 coolies have been imported by the department, who, in 1876, filled up the a rea already partly planted at Sitapahar, namely 171 acres, and during the present rains the first large extension is being made.

24. During the year under review we have commenced certain reproductive measures in the *Buxa* reserve, which do not appear under plantations, but which must be considered of great importance—namely, the propagation of sâl.

As a beginning we have since June 1876 planted a belt of sâl on an average 100 feet broad and 11,745 feet, or over two miles long, on the southern boundary of the Buxa reserve. The area has been stocked partly with transplants and partly by seed sown in rows. In this manner we hope to establish a dense belt of trees along the boundaries, which will enable us to keep fires out of the reserve without incurring a heavy outlay. When this belt has been established, planting and sowing operations will be carried on inside, wherever natural reproduction is not sufficient to stock the ground well.

25. *Creeper cutting.*—The creepers on the following areas were cut during the year:—

	Acres.
Darjeeling division, the Champasari and Murgong sâl forests, area ...	2,432
Julpigoree ditto, block III, compartments 5, 7, 8, 9, and 10 of the Buxa reserve, area	4,991
Total ...	7,423

A beginning has also been made in the Maiani reserve in Chittagong.

26. *Protection from fire.*—We have made a fresh start during the year and protected the following areas:—

				Acres.
Darjeeling	division,	the Sibhok	forest, area	1,554
Ditto	ditto,	the Bamunpokri	ditto „	1,373
Julpigoree	ditto,	the Muraghat	ditto „	10,900
Ditto	ditto,	the Buxa	ditto, two blocks	47,300
Chittagong	ditto,	the Sitapahar	ditto, ditto	5,000
			Total ...	66,127

The sum expended in fire protection amounts to Rs. 1,546 only, which is of course a very small amount compared with the area protected. But, then, the season happened to be very favourable in Darjeeling and Julpigoree. It is impossible to say what the cost will be in an unfavourable year like 1875-76, or whether our efforts will prove successful at all in such a year, until we have established thick belts of trees along the boundaries of all forests to be protected. We shall try our best, but the growth of grass is very rapid, and jungle fires in the Terai and in the Dooars are very violent and difficult to control.

27. *Breaches of forest rules.*—It may safely be stated that great progress has been made during the year in the prevention of forest offences, though much remains still to be done, because the areas to be watched are very extensive and the establishment small. The following prosecutions have been instituted during the year:—

		Prosecutions.	Convictions.
Darjeeling	division	5	5
Julpigoree	ditto	3	3
Sunderbuns	ditto	220	117
Chittagong	ditto	5	2
	Total ...	233	127

4.—Yield and Working of the Forests.

28. The forests are worked partly by departmental agency and partly by private purchases. Where the areas are limited and reproduction requires special assistance, as in the Darjeeling and to some extent in the Julpigoree division, the former system of working will probably have to be introduced throughout the forests. In the Sunderbuns and in Chittagong, on the other hand, the working may be left to private parties for years to come at any rate.

29. The departmental timber operations during the year may be thus exhibited:—

(a)—Trees felled during the year.

Divisions.	Sál.	Sissu.	Others.	Total.
	No.	No.	No.	No.
Darjeeling	764	.....	.....	764
Julpigoree	3,019	680	19	3,718
Total ...	3,783	680	19	4,482

Add—Palamow division ... ... 74,720 bamboos.

(b)—Timber brought to depôt from the forests.

Divisions.	Sál logs.	Sissu logs.	Sleepers.	Other pieces.	Total	
					Pieces.	Cubic feet.
Darjeeling	362	4	10,215	1,870	12,451	33,954
Julpigoree	3,036	207	.....	125	3,368	80,217
Total ...	3,398	211	10,215	1,995	15,819	114,171

Add—Darjeeling division, firewood ... ... 9,325 maunds.
Palamow ditto, bamboos 74,720

(c)—Transferred from one depôt to another.

Divisions.	Sál logs.	Sissu logs.	Soondry logs.	Other pieces.	Total	
					Pieces.	Cubic feet.
Darjeeling	234	.....	.....	223	457	7,635
Julpigoree	979	10	.....	78	1,067	24,028
Sunderbuns	.....	.....	311	.....	311	3,021
Total ...	1,213	10	311	301	1,835	34,684

(d)—Timber removed from depôts by purchasers.

Divisions.	Sál logs.	Sissu logs.	Sleepers.	Other pieces.	Total	
					Pieces.	Cubic feet.
Darjeeling	194	607	13,962	2,534	17,297	46,090
Julpigoree	514	2	.....	48	564	13,740
Sunderbuns	.....	.....	.....	4	4	34
Total ...	708	609	13,962	2,586	17,865	59,873

Add—Darjeeling ... ... 13,425 maunds of firewood.
Palamow ... ... 7,005 bamboos.

30. The annual timber account of the year stands as follows :—

	Pieces.	Cubic feet.		Pieces.	Cubic feet.
Balance in hand at commencement of year	11,479	78,368	Removed by purchasers	17,865	59,873
Received from the forests	15,819	114,171	Lost or used by the department ...	194	1,063
Transferred from one depôt to another	1,835	34,684	Transferred from one depôt to another	1,835	34,684
Received by confiscation	70	499	Balance in hand at close of year ...	9,309	132,102
Total ...	29,203	227,722	Total ...	29,203	227,722

We have sold 17,865 pieces, of which a good proportion consisted of old material, and we have brought to depôt 15,819 pieces. Although the latter figure is lower than the former, the quantity of timber in depôt has risen during the year from 78,368 to 132,102 cubic feet, as the new timber consists mostly of large logs.

31. The financial aspect of the timber operations may be seen from the subjoined figures :—

Divisions.	Average amount realized per cubic foot.			Average expenditure per cubic foot, including share of establishment, elephants, tools, &c.			Surplus per cubic foot.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Darjeeling	0	11	1	0	8	0	0	3	1
Julpigoree	0	12	9	0	4	9	0	8	0

These figures are, however, only approximately correct, and in order to obtain more correct data the average of a series of years should be taken. For the last three years we have thus :—

Divisions.	Surplus per cubic foot.											
	1874-75.			1875-76.			1876-77.			Average.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Darjeeling	0	5	10	0	6	13	0	3	1	0	5	4
Julpigoree	0	5	2	0	9	4	0	8	0	0	7	6

32. The material removed from the forests by *private purchasers* is exhibited below :—

Darjeeling Division.

Green trees	1,010	
Small poles	92	
Dry and fallen timber ...	2,363	cubic feet, 44 trees and 168 khambas.
Firewood, coolie tickets ...	786,	each corresponding to about 100 maunds.
Ditto, cart „ ...	32	ditto ditto 300 „
Ditto	7,823	maunds.
Drift wood	84	cubic feet, 36 trees and 66 maunds.
Bamboos	63,367	
Malingo bamboos, permits ...	650	

Julpigoree Division.

Green trees	28	
Dry trees	3,207	
Firewood	140	cart-loads.
Drift wood	109	pieces.
Confiscated wood	16	„

Sunderbuns Division.

Timber	2,30,124	maunds.
Firewood	29,71,973	„
Other produce	11,16,060	„
Total ...	43,18,157	maunds.

Chittagong Division.

Timber	1,03,638	cubic feet.
Bamboos	14,865,460	
Sunn grass	4,529,443	bundles.
Canes	3,244,500	
Gurjun-oil	365	maunds.

5.—Financial Results.

33. The subjoined table exhibits the actuals of 1876-77 compared with those of the last five years:—

Years.	Receipts.	Charges.	Surplus.	Area of reserved forests.
	Rs.	Rs.	Rs.	Square miles.
1871-72	87,260	67,506	19,754	106
1872-73	1,16,690	62,554	54,136	106
1873-74	1,23,732	81,068	42,664	120
1874-75	1,85,914	98,654	87,260	1,407
1875-76	1,98,274	1,39,086	59,188	2,585
1876-77	2,22,401	2,11,689	10,712	3,390

These figures show that the revenue is steadily increasing, having risen from Rs. 87,260 in 1871-72 to Rs. 2,22,401 in 1876-77. The charges have, however, during the same time risen from Rs. 67,506 to Rs. 2,11,689, which is due to the fact that the area of reserves has risen from 106 square miles in 1871-72 to 3,390 square miles in 1876-77. It is estimated that the expenditure will not rise beyond Rs. 2,30,000 annually for some years to come, whereas the receipts of 1877-78 are estimated at Rs. 3,00,000. That there is every prospect of reaching the estimate may be seen from the subjoined figures.

Revenue of April to July in 1876-77... ... Rs. 47,342,
Ditto ditto ditto 1877-78... ... „ 91,968

or in the latter year more than double the amount of revenue.

34. It has been shown above that the cash surplus amounts to Rs. 10,712 only. It should, however, be taken into consideration that we have brought a large quantity of timber to the depôts; wherefore the value of stock on hand at the close of the year surpasses that at the beginning of the year by Rs. 76,756, so that the net results of the year's transactions show a surplus of Rs. 87,468.

35. By arranging the receipts and charges according to the orders conveyed in the Government of India's letter No. 309, dated the 20th February 1877, Department of Revenue, Agriculture, and Commerce, the following table is obtained:—

	Receipts.		Charges.		Surplus.	Deficit.
		Rs.		Rs.	Rs.	Rs.
I.—Departmental timber operations.	I. 1 and 3	46,101	I. 1 and 3; half of VIII and IX, and one quarter of B.	76,538	.....	30,437
II.—Other revenue	I. 2, II., III., and IV.	1,76,300	I. 2, II., X; quarter of VIII and IX, and half of B.	68,522	1,07,778	.....
III.—Formation, protection, and improvement of forests.	.....	.....	III., IV., VII; quarter of VIII, IX, and B.	66,629	.....	66,629
Total ...	.....	2,22,401	.....	2,11,689	10,712	.....

The above table gives a deficit of Rs. 30,437 in the departmental timber operations, against which we have as a set-off Rs. 76,756, representing the increase in the value of stock. Besides, however, there can be no doubt that the above distribution throws too much expenditure on departmental timber operations in Bengal, because such operations are carried on in two divisions only out of five. The figures given in paragraphs 65 and 93 of this report have been calculated on the principle laid down in the Government of India's letter No. 309, but for the Darjeeling and Julpigoree divisions only, and they show far more favourable results than when the calculation is made for the whole province.

SECTION II.—RESERVED FORESTS.

A.—DARJEELING DIVISION.

1.—Area and Boundaries.

(a). Changes in areas.

36. The area on the 31st March 1876 was given in the report for 1875-76 as 106 square miles. Since then it has been found that it actually amounted to nearly 110 square miles. During the year under review the following areas have been added:—

The Tukdah block	1·3	square miles.
Nine blocks of forest situated in the Dumsong sub-division, forming a continuous belt .:.	50	„

so that the total area on the 31st March 1877 stood as follows:—

Terai forests	33	square miles.
Hill forests west of the Teesta	78	„
Ditto east of ditto	50	„
Total ...	161	„

or a total increase of 55 square miles.

37. Proposals for an additional 60 square miles are now under discussion, and it is estimated that finally the area of reserves will not be much short of 300 square miles.

38. The *Tukdah* block, gazetted by a notification dated 4th November 1876, published at page 1342 of the *Calcutta Gazette* of the 8th November 1876, forms an addition to the reserve already existing on the Tukdah spur, which latter runs from Sinchal towards the junction of the Rungeet and Teesta rivers.

(1) *Area.*—844 acres.

(2) *Boundaries.—South.*—The water-shed between the Rungjo and Rungoo nuddees on one side and the Rungnoo and Great Rungeet on the other side.

South-west.—The Darjeeling Company's leasehold land.

North-west, North, and East.—A demarcated line following the edge of the forest, and running from the Darjeeling Company's leasehold land, first, in a north-easterly, then easterly, then southerly direction, to the abovementioned water-shed, and more or less parallel to it, meeting at a short distance below the head-waters of the Rungiak nuddee.

(3) *Topographical description.*—The reserve is situated on the upper part of the north-western and northern slope of the Tukdah range, at an elevation of between 5,000 and 6,500 feet above the sea. The slope is steep in most places. Several small feeders of the Rungeet take their rise in the reserve.

(4) *Soil.*—Generally a clayey loam of good quality.

(5) *Description of forest.*—Upper hill forest consisting of oaks, chestnuts, magnolias, kabashi (*Acer*), laurels, hill chilauni (*Echinocarpus dasycarpus*), lepcha phal (*Actinodaphne sp.*), &c.

The growth is vigorous wherever the soil is of sufficient depth.

There are no villages in the block, and it is believed that the surrounding, population has no rights in it.

39. *The Dumsong reserve.*—Gazetted by a notification dated 4th September 1876, published at page 1250 of the *Calcutta Gazette* of the 4th October 1876. The reserve has, for convenience sake, been divided into nine blocks, which are situated in the area drained by the Teesta and its feeders—the Rilli, Maidong, and Rungpo rivers.

(1) *Area.*—50 square miles.

(2) *Boundaries.*—(i) *The Nuzzeak forest.—North.*—The Rilli river and its feeder, the Rey Oong.

East.—The water-shed between the Seth and Siok Johras, then the water-shed between the Door and Siok Johras up to the trigonometrical point at Nuzzeak.

South.—The water-shed between the Door Johra on one side and the Runeyoth and Gooling Johras on the other side from Nuzzeak to the Teesta.

West.—The Teesta.

Estimated area = 1,786 acres = 2·79 square miles.

(ii.) *The Tunang Forest.—North-west.*—The Rilli.

North-east.—A line running along a ridge from the junction of the Rere Oong and Rilli rivers to Tunang.

South-east.—A line running along a ridge from Tunang to the junction of the Nub Oong and Rey Oong rivers.

South-west.—The Rey Oong river.

Estimated area = 966 acres = 1·54 square miles.

(iii.) *The Rinkinpung Forest.—North and East.*—The Teesta-Kalinpung road; then a line running south from it and nearly parallel with the Teesta until near Sunklong; then following a ridge to Rinkinpung and another spur running in an eastern direction to the Rilli; then the Rilli.

South-east.—The Rilli.

West.—The Teesta.

Estimated area = 3,925 acres = 6·13 square miles.

(iv.) *The Kalinpung Forest.—West and North-west.*—The Teesta.

East, South-east, and South.—The Torchu; then a line running nearly parallel to the Teesta, at a distance of from half to one mile, to the Teesta-Kalinpung road; then the Teesta-Kalinpung road.

Estimated area = 2,658 acres = 4·15 square miles.

(v.) *The Dumsong Forest.—North.*—The Rungpuchu.

East.—A line running along a ridge from the Rungpuchu, between Cashun and Kabé, until close to Dumsong; then along the road from Dumsong to Doschung; then along the road from Doschung towards Kalinpung.

South.—A line running from the Kalinpung-Doschung road to the water-shed between the Teesta and Rilli rivers, meeting that water-shed about ¾ths of a mile south-west of Eecha; then running first in a northerly and then a westerly direction to the Torchu.

West.—The Torchu, and then the Teesta.

Estimated area = 12,699 acres = 19·83 square miles.

(vi.) *The Payong Forest.—North-west.*—The Kalinpung-Doschung road.

North-east.—The water-shed between the Noonchu and Maydong rivers; and then the Kalinpung-Laba road.

South-east.—The water-shed between the Noon Chu and Rilli rivers

South-west.—A line running from the south-eastern boundary to the Kalinpung-Doschung road.

Estimated area = 659 acres = 1·03 square miles.

(vii.) *The Maydong Forest.—North.*—An irregular line running from the Kalinpung-Doschung road to the Pakathong monastery.

East.—The water-shed between the Maydong and Rushettchu rivers.

South.—The Kalinpung-Laba road.

West.—The Kalinpung-Laba road; and then the w ter-shed between the Noonchu and Maydong rivers; and then the KalinpungaDoschung road.

Estimated area = 2,736 acres = 4·27 square miles.-

(viii.) *The Khempung Forest.—North and East.*—The Kalinpung-Laba road.

South.—The water-shed between the Rilli and Jitchu rivers as far as the Siehoor hill; then a ridge running from Siehoor towards Palé.

West.—A line running from the southern boundary to the Pakochu; then the Pakochu; then the Rilli; then the Kalingchu, and then a line running from the Kalingchu to the water-shed between the Rilli and Noonchu rivers; then up that water-shed to the Kalinpung-Laba road.

Estimated area = 3,580 acres = 5·59 square miles.

(ix.) *The Lolegaon Forest.—North.*—A ridge running from Sichoor towards Pali.

East and South.—The water-shed between the Rilli on one side and the Jit and Lesoo rivers on the other side.

West.—A line running from the south boundary to the Rere Oong; then to the Rungnochu, and then to the ridge running from Sichoor towards Palé.

Estimated area = 2,703 acres = 4·22 square miles.

(3) *Topographical description.*—The blocks are all situated on mountain slopes which are generally pretty steep, the elevation ranging from about 1,000 to 7,500 feet above the sea.

(4) *Soil.*—Loam; sometimes clayey and sometimes sandy.

(5) *Description of forest.*—The forest differs of course with the elevation. Up to 3,000 feet it consists of lower hill forest—namely, sâl accompanied by toon and other trees on the ridges and saj (*Terminalia tomentosa*), chilauni (*Schima Wallichii*), sida (*Lagerstrœmia parviflora*), champ (*Michelia champaca*), lampattia (*Duabanga sonneratoides*), goguldhup (*Canarium sp.*), India-rubber (*Ficus elastica*), toon (*Cedrela toona*), and others in the moist valleys.

Between 3,000 and 5,500, or perhaps 6,000, feet we find "middle hill forest," the most characteristic tree of which is chilauni. Toon reaches an enormous size here, up to 400 cubic feet per tree. Other remarkable trees are mahua (*Engelhardtia scipata*), chestnut (*Castanopsis Indica*), cherry (*Cirasus puddum*), alder (*Alnus Nepalensis*), pipli (*Bucklandia populifolia*), birch, &c.

Above 6,000 feet upper hill forest of oaks, chestnuts, magnolias, &c., is found.

A number of people used to reside inside the tracts; they have all been induced to settle elsewhere. As they are joomeahs, the measure was easily carried out, proper compensation being secured to them.

(*b*) *Demarcation.*

40. In 1875-76 the following forests were demarcated:—

(1) The Teesta-Shukna Terai range.
(2) The Shukna forest.
(3) The Bamunpokri forest, except the north boundary.
(4) The Dulka Jhar.

These four blocks comprise an area of 31·5 square miles, and the demarcated boundaries extend over a length of 24 miles.

41. During the year under review we have demarcated—

(1) The Bamunpokri forest, north boundary.
(2) The Lama Gumba forest.
(3) The Rangamatti forest, south boundary.
(4) The Khyrbani forest.
(5) The Chenga ditto.
(6) The Lohaghari.
(7) The Mechi forest, north boundary.
(8) The Tukdah forest.
(9) The Rinkinpung forest.
(10) The Kalinpung ditto.
(11) The Dumsong ditto.
(12) The Payong ditto.
(13) The Maydong ditto.
(14) The Khempung ditto.

The total area of these fourteen blocks amounts to 44·5 square miles, and the total length of boundary demarcated to 47 miles; so that up to date a total

area of 76 square miles, with a length of boundary actually demarcated equal to 71 miles, has been completed, leaving 85 square miles to be done in 1877-78.

The remaining area consists of large blocks with a good proportion of natural boundaries, so that the completion of the present reserves may safely be expected in 1877-78.

(*c*) *Boundary records.*

42. The materials for the preparation of the boundary records have been collected for nearly all the areas demarcated, and the officers of the division are now occupied in preparing the maps, so that the records will be ready as soon as the demarcation has been completed.

2.—Protection and Improvement.

43.) (*a Establishments.*—There have been no changes worth mentioning here in the scale of establishments.

44. (*b*) *Surveys and working Plans.*—These will be taken in hand as soon as the demarcation has been completed, and in the meantime the cuttings are regulated in a rough manner; the maximum number of trees to be available per year being fixed by dividing the total number of acres per range by ten. For instance, if the forests in a range comprise 10,000 acres, not more than 1,000 trees are allowed to be cut annually, or one tree for every ten acres.

45. (*c*) *Roads and Bridges.*—(1) The various timber roads in the Terai and lower hills have been cleared during the year.

(2) Along the demarcated boundaries traces from 6 to 10 feet broad have been cut.

(3) The two traces cut in the Dulka Jhar in 1875-76 have been improved, and one mile and a half of an additional trace have been cut. The latter will have to be completed, and one more cut during 1877-78, in order to divide this block into compartments of suitable size.

(4) The bridle path from the Mahanuddi to Bherik, across the Letpanchar and Sittong hills, has been completed during the year. Ten miles were made in 1875-76 and five miles in 1876-77.

(5) A road from Sibhok to meet the Mahanuddi-Bherik road has been commenced, three miles having been completed during the year. By the construction of these two roads a forest area of about 40 square miles, consisting of steep hills, has become accessible.

46. (*d*) *Buildings.*—The work during the year has been confined to repairing existing rest-houses, foresters' houses, and watchers' huts.

47. (*e*) *Reproductive measures.*—Planting operations are being conducted at three places—namely, at Bamunpokri, Rungbul, and Rungirum.

48. (1) *Bamunpokri.*—At the end of last year 124 acres had been planted with teak and toon. This area has been kept clean during the year, and existing vacancies were filled up with teak, toon, and sâl. During the year 1876-77 the following areas have been added :—

Compartment	I1	(extension)	=	5 acres.
"	I2			
"	I3b.	"	=	3 "
"	I5		=	23 "
		Total	=	31 "

This area has been planted with teak 10 × 10 feet and since the close of the year it has been interplanted with toon, sissu, and sâl, so that the seedlings stand now 5 feet apart each way. The total area now planted amounts to 155 acres.

The following areas have been prepared for planting in 1877-78:—

Compartment	I4 = 24	acres.
„	I6 = 9	„
„	I7 = 27	„
Total	= 60	„

As block I is to be completed in 1877-78, a new nursery has been laid out in block II, in which 28 seers of toon seed and 6 seers of sissu seed have been sown since the close of the year. The plants will thus be ready for transplanting in the rains of 1878.

49. An experimental *India-rubber* plantation, covering one acre, has been made in August 1876. The seedlings were 12 months old when planted out, so that they are now two years old. They are growing very well, and it is expected that this little plantation will be very instructive.

50. By the orders of Government an experimental *bamboo* plantation, extending over an area of one acre, has been established. The object is to ascertain how many tons of young shoots, fit for paper manufacture, can be produced per acre. As it will take some years to establish good sized clumps, nothing more need be said at present.

51. (2) *Rungbul.*—The plantation, extending over an area of 144 acres, has now been fenced in for nearly three years, and the effect is very gratifying. Had the fence been erected when the plantation was first laid out, we should have a fine young forest now. There can be no doubt that areas under reproduction near the hill cart road must always be fenced in, as it is impossible to keep out cattle in any other way.

In last year's report it has been stated that a quantity of different seeds were sown in the Rungbul nursery in order to raise a stock of seedlings with which the vacancies in the plantation can be filled up and further extensions made. It has been decided not to put the seedlings out into the plantation until they are three years old: hence they have been pricked out in the nursery, namely—

Walnut	6,194	seedlings
White magnolia	1,877	„
Red „	411	„
Oak	741	„
Ash	13,542	„
Deodar	7,892	„
Other pines	3,495	„
Total ...	34,152	„

These, together with those of the year before, will be ready for transplanting during the rains of 1878. As mentioned in last year's report, the number of oak seedlings is small, because no acorns could be obtained in the autumn of 1875.

In the autumn of 1876 the following seeds were sown in the nursery:—

Walnut	4 maunds.
White magnolia	2 „
Red „	1 maund.
Oak (buk)	6½ maunds.
Large chestnut	16 seers.

So far the walnuts have germinated very well and the other seeds fairly well.

52. (3) *Rungirum.*—This plantation was started as a Spanish chestnut plantation, of which seed is being sent out annually by Her Majesty's Secretary of

State for India. At the end of 1875-76 it comprised about one acre. Since then it has been decided to plant also hill toon in the locality, and thus the area has been extended to 3 acres.

In February 1876 some 240 pounds of Spanish chestnut were received. Although sown immediataly, they produced only 72 seedlings, which were kept in the nursery until a few weeks ago, when they were put out into the plantation. At the end of January and the beginning of February 1877, a new supply of Spanish chestnuts (232 pounds) were sown, which have up to date produced close on 1,200 seedlings—a result far more satisfactory than last year's.

During the year 854 toon seedlings were planted out into the plantation and 11,027 pricked out in the nursery.

It is intended to add oak and magnolia to the trees to be planted, and to extend the plantation on a larger scale than hitherto.

53. (*f*) *Creeper cutting.*—Up to the end of 1875-76 the creepers on 2,271 acres of sâl forest had been cut. During the year 1876-77 all sâl trees in the

Champasari sâl forest...	1,670	acres,
Murgong forest ...	762	„
Total ...	2,432	„

were cleared of creepers. Total area cleared up to date = 4,703 acres.

54. (*g*) *Protection from fire.*—Owing to occasional rain during the dry season, jungle fires were not very severe during the year, so that only parts of the forests have been burnt. Special measures for the protection of the following two forests were taken :—

The Sibhok sâl forest ...	1,554	acres.
„ Bamunpokri reserve ...	1,373	„
Total ...	2,927	„

The land adjoining the Sibhok forest was burnt over early in the season, so that the latter was easily protected, the only charge being Rs. 45-1 for five watchers.

The Bamunpokri forest is very much exposed to jungle fires, as most of the surrounding lands are generally burnt over by tea plantation coolies. Measures were taken to protect it thoroughly. These were quite successful, but the expenditure amounted to Rs. 1,212-14, or about 14 annas per acre. Although the expenditure may be reduced in future years, there can be no doubt that thorough fire protection in the Terai is very expensive owing to the rapid growth of vegetation.

55. (*h*) *Breaches of forest rules.*—The following prosecutions for breaches of forest rules were instituted during the year :—

Unauthorized felling or appropriation of wood and minor forest produce.	5 cases, in which 16 persons were involved.

In all cases convictions were obtained.

3.—Yield and Working.

56. The working of the forests has been done partly by departmental agency and partly by private purchasers.

57. During the year we have cut the following trees by Government agency :—

Sâl trees ...	689
Sâl kala khambas and jhanjies ...	75
Total ...	764 trees,

the details of which may be seen in statement 53.

58. The following statement shows the timber brought to depôt during the year by Government agency:—

Description of timber.	Pieces.	Cubic feet.
Sâl logs	362	16,036
Sissu „	4	41
Total logs ...	366	16,077
Sleepers, broad gauge	184	618
Ditto, narrow „	10,031	13,367
Total sleepers ...	10,215	13,985
Scantlings	274	1,752
Fenders	1,070	2,140
Khambas	526	...
Total miscellaneous ...	1,870	3,892
Total ...	12,451	33,954
Add transferred from the Sibhok to the Julpigoree depôt, sâl logs	234	7,635
Khambas	223	.....
GRAND TOTAL ...	12,908	41,589

In addition 9,325 maunds of firewood were cut in the Bamunpokri plantation.

59. The sales from Government depôts effected during the year are these:—

Description of timber.	Pieces.	Cubic feet.
Toon logs	65	585
Sâl „	194	8,473
Sissu „	607	4,655
Total logs ...	866	13,713
Sleepers, broad gauge	4,918	16,398
Ditto, narrow „	9,044	12,059
Total sleepers ...	13,962	28,457
Scantlings	530	1,789
Fenders	1,070	2,140
Khambas	869	.. ...
Total miscellaneous ...	2,469	3,929
GRAND TOTAL ...	17,297	46,099

The sales of firewood from the Bamunpokri plantation amount to 13,575 maunds.

60. The receipts at depôts and the sales compare as follows:—

	Pieces.	Cubic feet.
Receipts at depôts	12,451	33,954
Sales	17,297	46,099
Difference against the year ...	4,846	12,145

61. In former reports it has been pointed out that the timber operations consisted chiefly in bringing logs, sleepers, and scantlings, which had been cut some ten years ago and left lying about the forests, to depôt and into the market. These operations may be said to have been concluded now, as we have during the year under review commenced cutting new timber, and as we have cleared

the depôts of nearly all the old material. Hence it will be found further on that although the quantity of timber in depôt at the close of the year is smaller than at the beginning, still its value is greater, because it consists of new timber.

62. From a financial point of view the departmental operations have the following aspect:—

	Rs.	A.	P.
Average amount realized per cubic foot	0	11	1
Average expenditure per cubic foot, including share of establishment, elephants, tools, &c.	0	8	0
Surplus per cubic foot ...	0	3	1

Considering the large amount of old material sold, this result is not unsatisfactory.

63. The number of trees and the quantities of other produce sold during the year to, and removed from the forests by, purchasers is exhibited in the subjoined table:—

Description.	Number of trees.	Amount realized or due.			Rate			Remarks.
		Rs.	A.	P.	Rs.	A.	P.	
Toon	1	25	0	0	25	0	0	
Champ	34	850	0	0	25	0	0	
Book	135	1,806	0	0	13	6	0	
Phalat	15	186	0	0	12	6	4	
Katoos	83	1,118	0	0	13	7	6	
Pipli	23	312	0	0	13	9	0	
Hill chilauni	10	100	0	0	10	0	0	
Lali	30	266	0	0	8	13	10	
Kaula	23	206	0	0	8	15	4	
Kabashi	25	137	0	0	5	7	8	
Gobriah	66	374	0	0	5	10	8	
Lepcha phal	19	146	0	0	7	10	11	
Tarsing	34	199	0	0	5	13	7	
Sál	152	2,189	0	0	14	6	5	
Sissu	29	276	0	0	9	8	3	
Chilauni	103	1,027	0	0	9	15	8	
Lampattia	85	850	0	0	10	0	0	
Gogul dhup	10	100	0	0	10	0	0	
Simul	43	386	0	0	8	11	10	
Saj	41	410	0	0	10	0	0	
Miscellaneous	49	291	5	0	5	15	1	
Small poles	92	17	4	0	0	3	0	
Fencing wood	.....	3	0	0	.....			
Malingo bamboos	Permits ...	650	0	0	.....			
Bamboos	63,367	633	10	6	1	0	0	Per 100 bamboos.
Total ...	.....	12,558	3	6	.....			
Dry and fallen timber	2,363 c. ft. and 44 trees.	408	11	0	.....			
Ditto kala khambas	168	118	0	0	0	10	9	
Drift wood	84 c. ft., 36 trees, and 66 maunds.	169	2	0	.....			
Firewood, coolie tickets	786	2,211	0	0	2	13	0	
Ditto, cart "	32	256	0	0	8	0	0	
Ditto, maunds	7,823	234	11	7	3	0	0	Per 100 maunds.
Total ...	.....	3,452	3	7	.....			
Grand Total ...	.....	16,010	12	1	.....			
Add balance due on account of former years ..	.....	510	0	0	.....			
Total credited under I 2, a., b., and 3 ...	.....	16,520	12	1	.....			

64. The total number of trees taken out of the forests amounts to—

By Government agency	689 trees.
Removed by purchasers	1,010 "
Or a total of ...	1,699 "

The area of forests from which the trees have been taken comprises 111 square miles, so that we have removed 15 trees per square mile, or one tree per every 42 acres, which must be considered a very moderate yield. There can, however, be no doubt that, owing to the increase of tea cultivation, the demand will rise considerably year after year.

4.—Financial Results.

65. The actuals of the year, if distributed amongst the main heads of receipts and expenditure, stand thus:—

	Receipts.			Charges.		
	Rs.	A.	P.	Rs.	A.	P.
(1) Departmental timber operations ...	33,646	11	7	21,166	3	4
(2) Other revenue	21,817	3	8	11,411	14	8
(3) Formation, protection, and improvement of forests	.....			22,909	3	5
Total ...	55,463	15	3	55,487	5	5

These figures show a deficit of Rs. 23-6-2. From Form 60 it will be observed that the value of stock in hand at the close of the year exceeds that at the beginning of the year by Rs. 1,269-8-10, so that the net results of the year's transactions show a surplus of Rs. 1,246-2-8. This is of course a very small sum, but it should be taken into consideration that the sum of Rs. 22,909-3-5 has been spent on the improvement of the forests during the year. Whereas the revenue is sure to rise now year after year, the expenditure under improvement will probably be somewhat less in future years, so that the total charges are not likely to increase. Hence a steadily increasing surplus may safely be looked forward to.

B—JULPIGOREE DIVISION.

1.—Area and Boundries.

66. (*a*) *Changes in area.*—Up to the 31st March 1876 an area of 159 square miles had been gazetted as reserves. The Conservator of Forests, having gone over the division and inspected nearly every tract of forest, proposed an addition of 231 square miles, which received the sanction of His Honor the Lieutenant-Governor. Accordingly, by a notification dated the 19th September 1876, published at page 1160 of the *Calcutta Gazette* of the 20th September 1876, the original notifications were all cancelled and nine blocks covering an area of 390 square miles delared reserves, which include the areas originally set aside as such. These blocks are scattered over the Western Dooars, from the Teesta to the Sunkos river, and they may be shortly described as follows:—

(1) *Area.*—The Apalchand Forest ...	... =	26	square miles.
„ Tundu „ ...	... =	73	„
„ Daisah „ ...	... =	24	„
„ Muraghat „ ...	... =	17	„
„ Borojhar „ ...	... =	55	„
„ Buxa „ ...	... =	144	„
„ Raidak „ ...	... =	20	„
„ Dhumpara „ ...	... =	11	„
„ Bholka „ ...	... =	20	„
Total	... =	390	„

(2) *Boundaries.*—(*i*) *The Apalchand Forest.*—*North.*—A demarcated line near the southern boundary of Udlabari talook, and the Chel nuddee.

East.—A demarcated line, running from the Chell nuddee along the western boundary of the late Durga Mechi's land, known as Khatea Gaon Rajadanga; then in a westerly direction to the northern boundary of Binua Ram, zemindar's land, known as Khilabari Rajadanga, to the Phuljhora; then across that nuddee along the southern boundary of the sâl forest to the land of Maher Ali and others, known as Kala Duar; skirting these to the high land north of Kalambari village, along the edge of that high land to the Apalchand river, excluding the land known as Shamsherpokri; then the Apalchand river; then again a demarcated line running from the Apalchand to the Gila Jhora; thence in a south-easterly, easterly, north-easterly, easterly, and southerly direction to the Duramari nuddee, so as to exclude all lands under settlement with jotedars.

South.—The Duramari and Chengamari nuddees.

West.—The Teesta river and a demarcated line running along the southern and eastern boundary of the Gazlidhuba tea estate; then in a northern direction to the north boundary.

[NOTE.—The jotes held by Mr. Haughton and Panjab Sing are not included in this reserved tract.]

(*ii*) *The Tundu Forest.—North.*—The boundary between the Julpigoree and Darjeeling districts.

East.—The Jhuldaka river; then a demarcated line running near its eastern bank; then again the Jhuldaka.

South.—A demarcated line near the west bank of the Jhuldaka; then the Juldaka; then the Murti river; then a demarcated line running from the Murti, first in a southern and then in a western direction, to the Dhurla river, meeting the latter just above Lataguri Hât.

West.—First the Dhurla river; then a demarcated line round Barodighi jote so as to exclude it; again the Dhurla; then a demarcated line running from the Dhurla, first in an eastern and then northern direction, to the Murti river; then the Murti; then a demarcated line running from the Murti to the Indong river; then the Indong.

[NOTE.—The old jote 554 is not included in this reserved tract.]

(*iii*) *The Dainah Forest.—North.*—A demarcated line running near the north boundary of the Kalabari talook.

East.—The Dainah river; then a demarcated line running some distance east of the Dainah.

South.—A demarcated line running from the east boundary to the Dainah river; then down the Dainah for a short distance.

West.—A demarcated line running some distance to the west of the Dainah; then the Ghatia river; then a demarcated line running some distance to the west of the Gujir Dainah river until it meets the northern boundary.

(iv) *The Muraghat Forest.—North.*—A demarcated line running from the source of the Nonai nuddee to the source of the Garati nuddee.

East.—The Garati nuddee; then a short line to the Ghair Kuta nuddee; then the Ghair Kuta nuddee.

South and West.—The Nonai nuddee.

(v) *The Barojhar Forest.—North.*—The Bhootan frontier.

East.—The Hashmara, Balla Tursa, and Molungi nuddees; then a demarcated line from the Molungi nuddee to the Buri Basra nuddee; then the Buri Basra and Alaikuri nuddees.

South.—The Bania nuddee; then a demarcated line from it to the Buri Tursa; then the Buri Tursa river.

West.—The Ulundi nuddee; then a demarcated line to the Hashmara nuddee, then the Hashmara nuddee; then a demarcated line to the Tursa; and the Tursa river up to the Bhootan frontier.

(vi) *The Buxa Forest.—North.*—A demarcated line from the Alaikuri or Pana river running in a south-easterly direction to the Alipore-Buxa road, meeting it just below Sontorabari; then running first in a north-easterly and then in a south-easterly direction to the Bhootan frontier.

East.—The Bhootan frontier; then the Guddadhur river; then a demarcated line running first west, then south, then east, back to the Guddadhur river; then again to Guddadhur river.

South.—A demarcated line running from the Guddadhur in a westerly direction to the Paror nuddee.

West.—A demarcated line from the Paror river to the Nimti Jhora; then the Nimti Thora; then a demarcated line running first east, then south-east, then east, and then north to the Gurm nuddee; then the Gurm nuddee; then a demarcated line to the Alaikuri river, and the Alaikuri river to the north boundary.

(vii) *The Raidak Forest.—North.*—The Bhootan frontier.

East.—The Raidak river.

South.—A small jhora joining the Raidak river with the Nasirpak nuddee.

West.—The Nassirpak nuddee; the Chipra nuddee; a demarcated line from the Chipra nuddee first in a north-eastern, then eastern, then northern, and then western direction to the Dhola Jhora; the Dhola Jhora; and the Bhootan frontier to the north boundary.

(viii) *The Dhumpara Forest.—North.*—The Bhootan frontier.

East.—The Sunkos river.

South.—A demarcated line running from the Sunkos, first in a western, then north-western, and then again western direction, to the Raidak river.

West.—The Raidak river.

(ix) *The Bholka Forest.—North.*—The Sunkos river.

East.—The Sunkos river, the Bharuldara Jhora, and the Jhorai nuddee.

South.—A demarcated line running from the Jhorai, first in a westerly and then north-westerly direction, to the Kulkuli nuddee.

West.—The Kulkuli nuddee; a demarcated line from the Kulkuli in a north-easterly direction to the Gholanee nuddee; the Gholanee nuddee; a demarcated line from it in a north-easterly direction to the Sunkos.

(3) *Topographical description.*—The northern part of the Buxa reserve, extending over an area of about 20 square miles, is situated on the outer hills of the Himalayas up to an elevation of about 2,500 feet. All the other forests are situated in the plains, partly on slightly elevated plateaux and partly on low ground along the beds of the numerous rivers traversing the Dooars.

(4) *Soil.*—This varies of course considerably; but in a general way it may be said that in the higher parts it consists of loam with more or less sand, and in the lower parts either of clay or of sand.

(5) *Description of forest.*—There are five chief classes of forest—namely, lower hill forest, sâl forest, savannah forest, mixed forest, and khair and sissu forest.

The lower hill forest, which appears in the northern part of the Buxa reserve, is pretty much of the same description as that mentioned in the Darjeeling division (*vide* paragraph 39 (5) of this report.) It covers about 20 square miles.

The sâl forest is composed chiefly of sâl with akshi (*Dillenia pentagyna*), kumbi (*Careya arborea*), sida (*Lagerstrœmia parviflora*), and others.

The *Savannah* tracts are covered with grass and single trees of sâl, simul, (*Bombax Malabaricum*), bastard sâl (*Eugenia obovata*), palas (*Butea frondosa*), and others.

The *mixed forest*, when of a dry nature, contains the same trees as sâl forest, but without the sâl, and if wet, on low ground, it contains chestnuts, chalta (*Dillenia Indica*), horse chestnut, figs, &c.

The *khair and sissu* forest contains, besides khair (*Acacia catechu*) and sissu (*Dalbergia sissu*), chiefly siris (*Albizzia sirissa*, and *elata*) *Odina wodier*, etc.

The distribution of the different kinds of forest may be described in this way:—

The lower hill forest, on the Buxa hills.

The sâl, savannah, and dry mixed forests, on the higher ground in the plains.

The wet mixed forest, on more or less swampy ground.

The khair and sissu forest, on sandy soils and on ground little or not at all raised above the beds of rivers.

The areas occupied by each class of forest are approximately these:—

Sâl savannah, and mixed forest	= 270	square miles.
Lower hill forest with sâl	= 20	"
Khair and sissu forest	= 100	"
Total	= 390	"

Some of these forests contain mature timber, as for instance the Buxa reserve which is capable of yielding at once about 3,000 mature sâl and sissu trees, giving about 80,000 cubic feet of timber per annum. The greater part of the forests is, however, in a reduced condition, and it will take years of conservancy to stock the areas completely.

(6) A small number of joomeahs used to live in the reserves. Most of these have left, compensation having been paid to those who were materially affected by the change. After another year no people at all will be found inside the reserves, except three small colonies of dâk-runners, who live on the Alipore-Buxa road.

67. Since the close of the year three additional reserves—the Dulgaon, Dumchi, and Khairbari blocks—covering an area of 12 square miles, have been gazetted, bringing the total area of reserves up to 402 square miles.

68. (*b*) *Demarcation.*—Up to the 31st March 1876 the following forests had been demarcated:—

(1) The Buxa reserve partly; length demarcated ...	= 22	miles
(2) „ Borojhar reserve	= 13	„
(3) „ Raidak „	= 10	„
(4) „ Bholka „	= 8	„

or a total length of 53 miles.

69. During the year under review we have demarcated the following:—

(1) The Apalchand reserve, west boundary	= 10½	miles.
(2) Tundu reserve, south boundary and part of west boundary	= 13	„
(3) Muraghat reserve, completed	= 4½	„
(4) The Buxa ditto, completed	= 18½	„
(5) „ Dhumpara ditto, completed	= 5½	„
Total length of boundary demarcated during the year ...	= 52	„

Throughout these lines the boundary posts are nowhere farther apart than 500 feet.

70. The following boundaries remain to be demarcated:—

(1) Apalchand reserve, west and north boundaries ...	= 11	miles,
(2) Tundu reserve, part of western boundary and the eastern boundary, about...	= 12	„
(3) Dainah reserve	= 18	„
(4) Dulgaon ditto	= 3	„
(5) Dumchi ditto	= 2	„
(6) Khairbari ditto	= 3	„
Total ...	= 49	„

so that the completion of the demarcation may safely be expected in 1877-78.

71. (*c*) *Boundary records.*—With two exceptions, the boundary records of all demarcated reserves have been completed during the year. Those remaining undone will be compiled in 1877-78.

2.—Protection and Improvement.

72. (*a*) *Establishments.*—No changes have taken place.

73. (*b*) *Surveys and working plans.*—A working plan for the Buxa reserve was drawn up in 1874-75. Those for the other reserves will be taken in hand during the coming working season now that the demarcation approaches completion.

74. (*c*) *Roads.*—(1) Along every boundary that has been demarcated, with the exception of the north boundary of the Buxa reserve, a tract from 6 to 15 feet in breadth has been cleared, and, whenever practicable, footpaths established.

(2) A system of roads 15 feet broad was commenced in the Buxa reserve in 1874-75. Up to the 31st March 1876 the following roads had been cut:—The 29th, 28th, 27th, 26th, and 25th mile roads = 16¾ miles in length,

These roads were kept open and improved during the year, and in addition the following were cut:—

The 30th	mile road	...	...	...	=	3	miles,
„ 24th	„	...	...	...	=	3½	„
„ 23rd	„	...	...	...	=	3½	„
„ 22nd	„	...	...	...	=	4½	„
			Total		=	14½	„

so that the total length of road made up to date amounts to 30¾ miles.

75. (*d*) *Buildings.*—(1) A forest house was built at Buxa at a cost of about Rs. 1,000. The floors and walls are made of planks, the roof of thatch, and the house contains three rooms.

(2) A second class rest-house has been built in the Alipore depôt.

(3) A shed to hold two elephants has been erected in the Alipore depôt.

76. (*e*) *Reproductive measures.*—Partly for the purpose of collecting information regarding the cost and best method of reproducing sâl, and partly with the view of establishing a belt of trees along the southern boundary of the Buxa reserve to facilitate fire protection, the planting of sâl was commenced in June 1876. The land in question was covered with dense, tall grass, which was cleared away, and, parallel with the 15 feet broad boundary road, 10 lines, 5 feet apart, were laid out, and in these lines sâl seedlings, collected from the surrounding forests, and from 2 to 6 feet high, were planted 2½ feet distant from each other. Altogether 7,383 plants were put in during the rains of 1876, thus establishing a belt 50 feet broad and 1,845 feet long; the area planted being equal to a little over 2 acres. In July 1877, or 12 months after the planting had been done, 6,244 plants were alive and growing, so that 85 per cent. of the transplants proved successful, which must be considered as very satisfactory. The total cost amounted to Rs. 577. This is of course a high figure, and the system has therefore been changed. During the present season we have sown sâl seed in rows, 10 lines, 5 feet apart, along the boundary road, and 6 more lines, 15 feet apart, thus forming a belt 150 feet broad. The total length sown amounts to 9,900 feet, so that the area cultivated is equal to 34 acres. The total cost up to date amounts to Rs. 396, or about Rs. 11-10 per acre. It is estimated that the cost per acre within the first 12 months will not exceed Rs. 20, or at any rate not Rs. 25. The sâl seed has germinated well, except where the soil is too wet. The latter places will have to be filled up with seedlings, which will thrive in low soil. On the whole, there can be no doubt that the establishment of a belt of trees along boundary lines will prove the safest way of keeping fire out of the reserves in the Dooars and the Darjeeling Terai, where the growth of the vegetation is so very rapid, and where jungle fires are so violent and difficult to control.

77. (*f*) *Creeper cutting.*—Up to the 31st March 1876 compartments 1, 2, 3, 4, and 6 in block III of the Buxa reserve, measuring 3,182 acres, had been cleared of creepers. During the year under review the creepers in the following compartments were cut:—

Compartment	5	...	...	=	988	acres,
„	7	...	...	=	955	„
„	8	...	...	=	884	„
„	9	...	...	=	960	„
„	10	...	...	=	1,204	„
			Total	=	4,991	„

making, up to date, a total area of 8,173 acres.

78. (*h*) *Protection from fire.*—The Muraghat forest = 10,920 acres, and the Rajabhatkawa and Poro blocks of the Buxa reserve = 47,360 acres, or a total area of 58,280 acres = 91 square miles, have been protected against fire, by clearing lines wherever necessary and by entertaining a gang of fire-watchers. Of the former 20 acres, and of the latter 60 acres, only were burnt, so that the measures may be considered as highly successful. The expenditure amounted

to Rs. 288-4-9 only, as the season was favourable for fire protection. Whenever the reverse is the case, that is to say—if no rain falls during the dry season—the expenditure will necessarily be very considerably higher. It is to be hoped that we shall continue to be successful.

79. (*g*) *Breaches of forest rules.*—The following prosecutions for breaches of the forest rules were instituted during the year:—

Injury to forests by fire ...	...	1 case, involving	1 person.
Unauthorized felling of trees	...	1 „ „	1 „
Personating a watcher	...	1 „ „	1 „
Total	...	3 cases, involving	3 persons.

In all cases convictions were obtained.

3.—Yield and Working.

80. Work on Government account has been commenced in the Apalchand and Buxa reserves.

81. In the Apalchand reserve 405 sâl trees were cut during the year to satisfy the demand for sâl timber for public works at Julpigoree and Rungpore.

82. The working of the Buxa reserve, in accordance with the provisions of a defined working plan, was commenced in 1875. The following table shows the trees cut during the year under review, as well as the total number cut up to the 31st March 1877:—

Compartments.	Number of trees felled in 1876-77.			Number of trees felled before.			Total number of trees felled up to 31st March 1877.		
	Sâl.	Sissu.	Total.	Sâl.	Sissu.	Total.	Sâl.	Sissu.	Total.
Block III.—*Rajabatkhawa.*									
Compartment 1	....	.....	.....	630	9	639	630	9	639
Ditto 2	55	.....	55	226	22	248	281	22	303
Ditto 3	...	.....	. .	894	83	977	894	83	977
Ditto 4	.....	... .	. ..	252	26	278	252	26	278
Ditto 5	145	110	255	...	...	...	145	110	255
Ditto 6	.....	.....	. ....	638	.....	638	638	... ..	638
Ditto 7	314	... ..	314	.....	.....	... ..	314	... .	314
Ditto 8	599	..	599	.....	...	.	599	...	599
Ditto 9	7	369	376	.....	.....	.....	7	369	376
Ditto 10	1,224	201	1,425	.....	.....	.....	1,224	201	1,425
Total .	2,344	680	3,024	2,640	140	2,780	4,984	820	5,804

On reference to the working plan attached to the report for 1874-75, it will be observed that only compartments 1 to 9 should have been worked. It was, however, found necessary to cut the trees in compartment 10 one year beforehand, so that the elephants might have work during the rains of 1877.

83. In the construction of the 30th, 24th, 23rd, and 22nd mile roads the following additional trees have been cut during the year:—

Sâl trees	...	...	...	195
„ khambas	...	...	...	75
Khair trees	...	...	...	10
Chilauni	...	...	...	2
Sida	...	...	...	3
Katus	...	...	...	4
		Total	...	289

Hence the total number of trees cut during the year in the reserve amounts to 3,313.

84. The departmental elephants dragged 2,886 logs from the forest to the sides of the carting roads. This makes an average of about 550 logs per elephant.

85. Of the Apalchand timber, 189 sâl logs and 5 sissu logs were dragged and floated to Julpigoree. From the Buxa reserve 3,138 logs were carted to the Alipore depôt.

86. The following quantities of timber reached the depôts during the year:—

Description of timber	Pieces	Cubic feet
Sâl logs	3,036	76,655
Sissu logs	207	3,290
Miscellaneous logs	20	272
Total logs ...	3,263	80,217
Khambas	105	.....
Total ...	3,368	80,217
Add—Transferred from Alipore to Dacca depôt—		
Sâl logs	979	23,563
Sissu logs	10	124
Miscellaneous logs	24	341
Khambas	54	.. ..
GRAND TOTAL ...	4,435	104,245

87. The following timber has been sold from depôts during the year:—

Description of timber.	Pieces.	Cubic feet
Toon logs	2	72
Sâl logs	514	13,632
Sissu logs	2	36
Total logs ...	518	13,740
Khambas	46	.....
GRAND TOTAL ...	564	13,740

88. The receipts at depôts and the sales compare thus:—

	Pieces.	Cubic feet
Receipts at depôts	3,368	80,217
Sales	564	13,740
Difference in favour of the year .	2,804	66,477

89. The timber operations in this division were started lately only, and we had in the first instance to stock our depôts: hence the quantity sold is much smaller than that taken to depôt. Now that a sufficient stock has been brought to depôts, we shall only replace what we sell annually.

90. The financial aspect of the timber operations may be seen from the following figures:—

	Rs.	A.	P.
Average amount realized per cubic foot	0	12	9
Ditto expenditure per cubic foot, including share of establishment, elephants, tools, &c.	0	4	9
Surplus per cubic foot ...	0	8	0

The above calculation has been based on the actuals of 1876-77; but as several items of expenditure have not been settled during the year, the expen-

diture per cubic foot is somewhat more than Re. 0-4-9, and the surplus less than Re. 0-8-0. Correct results can only be arrived at by taking the average of a number of years.

91. The subjoined table gives the number of trees sold to, and removed from the forests by, purchasers during the year:—

Description.	Number.	Amount realized.	Rate.	Remarks.
		Rs. A. P.	Rs. A. P.	
Sál, green ...	4	60 0 0	15 0 0	
Ditto ...	2	14 0 0	7 0 0	
Sál, dry ...	1	10 0 0	10 0 0	
Kala khambas, 4½' to 6' girth...	6	42 0 0	7 0 0	
Ditto 3' to 4½' " ...	318	954 0 0	3 0 0	
Ditto 2' to 3' " ...	928	928 0 0	1 0 0	
Ditto under 2' " ...	1,736	868 0 0	0 8 0	
Sissu, dry ...	28	84 0 0	3 0 0	
Ditto ...	7	14 0 0	2 0 0	
Ditto ...	29	29 0 0	1 0 0	
Ditto ...	111	55 8 0	0 8 0	
Chilauni, green ...	1	10 0 0	10 0 0	
Ditto ...	3	22 8 0	7 8 0	
Ditto ...	2	12 0 0	6 0 0	
Amri ...	8	48 0 0	6 0 0	
Gunshari ...	1	6 0 0	6 0 0	
Phool ...	1	6 0 0	6 0 0	
Simul ...	1	5 0 0	5 0 0	
Ditto ...	3	18 0 0	6 0 0	
Jhao ...	1	6 0 0	6 0 0	
Dug-out ...	1	5 0 0	5 0 0	
Khair ...	13	4 14 0	0 6 0	
Posts ...	30	15 0 0	0 8 0	
Permits ...	.....	92 0 0	.....	
Bamboos ...	1,013	10 2 0	1 0 0	Per 100 bamboos
Total ...	.....	3,319 0 0	.....	
Firewood, carts ...	110	34 0 0	0 5 0	
Ditto ...	30	7 8 0	0 4 0	
Total ...	.....	41 14 0	.....	
Drift.				
Sál ...	2	4 0 0	2 0 0	
Sissu ...	44	44 0 0	1 0 0	
Bolal ...	1	6 0 0	6 0 0	
Beeri ...	3	18 0 0	6 0 0	
Dhooti ...	2	12 0 0	6 0 0	
Sleepers ...	35	57 0 0	.....	Auction sale.
Firewood (pieces) ...	22	18 8 0	.....	Ditto.
Confiscated.				
Sál gools ...	16	80 0 0	5 0 0	
Total ...	.....	239 8 0	.....	
Grand Total ...	.....	3,600 6 0	.....	

92. The total number of green trees cut during the year stands thus:—

By Government agency ... ... 3,718 trees,
Removed by purchasers ... ... 28 „

or a total of 3,746 trees. As the area of reserves amounts to 390 square miles we have removed 10 trees per square mile, or one tree for every 64 acres. In addition, we have sold 3,207 dry trees, which were mostly under 3 feet girth and which had died a natural death.

4.—Financial Results.

93. These stand as follows:—

	Receipts Rs. A. P.	Charges. Rs. A. P.
(1) Departmental timber operations ...	11,174 4 6	30,799 13 1
(2) Other revenue	4,359 15 3	10,284 5 1
(3) Formation, protection, and improvement of forests	.....	13,641 10 8
Total ...	15,534 3 9	54,725 12 10

The actuals show a deficit of Rs. 39,191-9-1, which is due to the large timber works and comparatively small sales. From form 60 it will be seen

that the value of stock at the close of the year surpassed that at the beginning of the year by Rs. 71,218-10-0: hence the net result of the year's transactions represents a surplus of Rs. 32,027-0-11.

94. The market for our sâl timber from the Buxa reserve is Eastern Bengal, and especially Dacca. Hitherto these districts have been supplied from Nepal and from Oudh; but as we can sell timber at Dacca at and below the rates which are paid in Oudh, we must drive the latter out of the market in course of time. At present the people think that the Nepal timber is superior to the Dooars' timber in durability, but that superstition will no doubt disappear, and at any rate the difference in price is sure to carry the day, and then our forests should yield a handsome cash surplus. Besides, the Dooars are now being opened out for tea cultivation, so that the local demand also must largely increase.

C.—PALAMOW DIVISION.

1.—Area and Boundaries.

95. (*a*) *Changes in area.*—At the end of 1875-76 the area of reserves amounted to 151 square miles, all situated near the banks of the river Koel and its feeders, above Daltongunge. During the year four blocks of forest situated on the Khymore range, in the Sasseram sub-division of the Shahabad district, close to the river Soane, were added to the reserves of the division by a notification dated the 31st July 1876, published at page 1141 of the *Calcutta Gazette* of the 13th September 1876. These blocks are—

96. (1) *The Rhotas Plateau*, area = 9·43 square miles, situated at an elevation of close on 1,500 feet above the sea. The sandstone rock comes everywhere to the surface, and there is only a very thin layer of soil in most places: hence the ground is very dry. The northern half of the area is fairly wooded, but the southern half is almost completely denuded. The prevailing trees are sida (*Lagerstrœmia parviflora*) and salai (*Boswellia thurifera*); next to these come piar (*Buchanania latifolia*), dhauta (*Anogeissus latifolia*), and persar. Of sâl, asan (*Terminalia tomentosa*), khair (*Acacia catechu*), and then (*Diospyros melanoxylon*), the ebony, only a few seedlings are found. Bamboos are scarce. On the whole, the forest is in a very reduced condition.

Valuation surveys extending over 167·81 acres, equal to 2·8 per cent. of the total area, show the following average contents per acre of the fifteen most important species:—

Under 18″ girth	23·95	
18″ to 3′ girth	2·30	
3′ to 4′ 6″ girth	0·52	
4′ 6″ to 6′ girth	0·29	
Above 6′ girth	0·13	
Total .	27·19	per acre.

On these, 20·76 are sida, only 0·11 (all seedlings) sâl, and 0·14 ebony.

Of minor produce, the savi grass is much prized for ropes and exported from the plateau.

There are two villages on the plateau—Gajimaidan, containing about 25 houses, and Sukpura, with 17 houses, the inhabitants of which cultivate in the denuded area.

97. (2) *The Rhotas Slopes*, area = 10·73 square miles, surround the Rhotas plateau from the top down to an elevation of about 500 feet above the sea. With the exception of the lowest parts, they are very steep. The upper part consists generally of a sandstone cliff, which lower down changes in a mass of *débris* consisting of sandstone and limestone. The upper precipitous parts are generally almost bare, but the rest of the slopes is fairly well wooded. Bamboos are plentiful and exported in large quantities.

Valuation surveys extending over an area of 203·4 acres, equal to 3 per cent. of the total area, show the following average contents per acre of the fifteen more important species:—

Under 18″ girth	49·65
18″ to 3′ „	3·08
3′ to 4′ 6″ „	1·08
4′ 6″ to 6′ „	0·51
Above 6′ „	0·14
Total ...	54·46

Of these there are—

Persar	13·74
Khair	12·65
Sida	8·71
Dhauta	8 41
Thên (ebony)	7·66
Sâl	1·14

It will be observed that the slopes contain about twice as many trees per acre as the plateau, and that there is a good proportion of khair and ebony, both valuable woods. Of sâl there is very little, though more than on the plateau. Of mature timber there is very little now. Neither villages nor cultivated lands are found on the slopes.

98 (3) *The Rehul Plateau*, area about 11 square miles, adjoins the Rhotas plateau, being connected with it by a narrow neck of land. Its elevation and geological formation are about the same as those of the Rhotas plateau, but there is far more soil in Rehul.

About three-fourths of the plateau are well wooded, and the remaining fourth is land which has been under cultivation. Surveys extending over 123·05 acres, equal to 1 6 per cent. of the total area, show the following results, comprising fifteen species:—

Under 18″ girth	75·12
18″ to 3′ „	7·37
3′ to 4′ 6″ „	2·05
4′ 6″ to 6′ „	0·64
Above 6′ „	0·23
Total ...	85·41

Of these there are—

Sâl	48·60
Asan	10 23
Thên (ebony)	9·88
Sida	8 29
Dhauta	5 86
Mahua (*Bassia latifolia*)	2·22

This forest may, therefore, be called a sâl forest with a fair admixture of ebony and other valuable woods.

Although the forest does not contain much mature timber at present, numbers of large stumps prove how well the trees will grow if allowed to do so.

The following villages are situated in this block:—

Rehul,	consisting of	12 houses.
Jumua,	ditto	10 „
Kalea,	ditto	8 „
Kurmeta,	ditto	15 „
Deohara,	ditto	4 „
Toridag,	ditto	8 „

99. (4) *The Bans-i-koh*, area = 5 76 square miles, consists of a slope similar to the Rhotas slopes. Surveys extending over 61,065 acres, equal to 1·6 per

cent of the total area, show the following numbers of trees of the fifteen most important species per acre :—

Under 18″ girth	...	...	...	...	69·16
18″ to 3′ „	...	...	...	...	6·72
3′ to 4′ 6″ „	...	...	...	...	2 15
4′ 6″ to 6′ „	...	...	...	.	0 82
Above 6′ „	...	...	...	...	0 41
			Total	..	79·26

Amongst these are—

Thên (ebony)	...	...	...	..	... 23·08
Khair	...	...	...	...	... 15 62
Dhauta	...	...	...	...	... 13·31
Asan	...	...	...	..	... 11·06
Persar	...	...	...	...	... 5·99
Sida	...	...	...	...	... 5·80
Sâl	...	...	...	...	... 0·05

As will be seen, ebony is the prevailing tree. The block is fairly stocked though very poor now in mature trees.

100. All these blocks have been for generations at the mercy of the surrounding population and of traders. With proper care they would, however, become very valuable, as they are situated close to the bank of the Soane, which passes lower down through districts poor in forests.

101. The total area of the four blocks is about 37 square miles, so that the area of reserves in the division amounts now to 188 square miles.

102. In the report for 1875-76 it was stated that the Palamow reserves, covering an area of 151 square miles, consist of 37 blocks scattered over the southern part of the sub-division. The Conservator examined these forests in December 1876 and January 1877, and in conjunction with the Assistant Commissioner re-arranged the areas, so that the number of blocks has been reduced to seven, containing an area of 179 square miles, and bringing the total area of reserves up to 216 square miles. These arrangements received the sanction of Government, but as the revised notification was published after the close of the year, the detailed record will appear in next year's report.

103. (*b*) *Demarcation.*—An attempt was made to demarcate the Khymore reserves, but after the Deputy Conservator in charge had spent some two months on this work, it was found hopeless, as the surrounding population disputed the boundaries, claiming the best parts of the reserves and extensive rights in the remainder. It has now been arranged that a Settlement Deputy Collector is to proceed to the spot early next working season, and to lay down the boundaries in the presence of the Deputy Conservator of Forests.

2.—Protection and Improvement.

104. As we have so far been chiefly occupied with the formation and demarcation of the reserves, not much can be recorded under this head. The existing reserves have been protected against illegal interference by an establishment consisting of four foresters and 18 watchers.

105. Endeavours have been made to extend the production of lac by putting out seed-lac in several forests, and as soon as we have completed the demarcation, the improvement of the reserves in this respect according to a systematic plan will be taken in hand.

3.—Yield and Working. 4.—Financial Results.

106. It has been explained in last year's report that the Palamow forests require rest for a number of years to come, to enable them to recover from past maltreatment. Hence they have not been worked during the year, with the exception of cutting a number of bamboos and of utilizing several articles

of minor produce, as lac, the flowers of mahua, grass, &c., so that the revenue amounts to a few rupees only. The actuals stand thus:—

	Rs.	A.	P.
Receipts	1,254	4	10
Charges	7,197	7	5
Deficit ...	5,943	2	7

The protection of the forests will, for some years to come, necessitate a small deficit, which, however, is not likely to exceed Rs. 10,000 per annum. Ultimately these forests will yield large quantities of sâl and other timber for the Shahabad, Gya, and adjoining districts.

D.—SUNDERBUNS DIVISION.

1.—Area and Boundaries.

107 (*a*) *Changes in area.*—The area of the forest reserve amounted to 1,199 square miles on the 31st March 1876. Subsequently to that date it was found that the reservation of an additional block was advisable, partly to establish a better boundary, and partly to secure an area sufficient to yield all the firewood and minor produce required for those districts of Lower Bengal which must rely on the Sunderbuns for these articles. Accordingly the Satkhira unleased Sunderbuns, comprising an area of 382 square miles, were declared reserved by a notification dated the 1st August 1876, published at page 931 of the *Calcutta Gazette* of the 2nd August 1876, thus bringing the total area of the reserve up to 1,581 square miles. The boundaries of the addition are the following:—

North.—From the Kalindi nuddee eastward along the northern boundary of the ungranted portion of lot No. 164, called Kookhali, to the Jaboona river; then down the Jaboona; then along the eastern boundary of the Kalenchi Abad; then the Moor Gong; then the Aburi and Allooah khals; then up the Eshamutti river; then along the northern boundary of ungranted lot No. 169; then the Chuar Gong; and then the Colputtoo river to the Arpungassya river.

East.—The Government forest reserve from the junction of the Kobaduk and Colputtoo rivers down to the sea.

South.—The sea.

West.—The Kalindi nuddee and the Roymungul river.

The nature of the Satkhira Sunderbuns resembles that of the older parts of the reserve so much, that for details a reference to paragraph 72 of the report for 1874-75 will suffice.

108. The reserve consists now of three blocks, namely:—

The Bagirhat block	=	about	500	square miles.
„ Khoolna „	=	„	699	„
„ Satkhira „	=	„	382	„

Of these, the first is a soondry timber reserve, in which the cutting of soondry trees of less than 3 feet 9 inches girth measured at 4 feet 6 inches from the ground is strictly prohibited, and the other two blocks are firewood reserves.

109. (*b*) *Demarcation.*—With the exception of a portion of the north boundary of the Satkhira reserve, all boundaries are formed by the sea or by rivers. The southern, eastern, and western boundaries are unmistakeable, as the rivers are large and well known. The rivers on the north boundary are partly narrow, and the demarcation has been effected by fixing boards, 2 feet by 1 foot, on conspicuous trees or on posts erected for the purpose. On the whole the boundary is well defined.

110. (*c*) *Boundary record.*—There is no need for a special boundary record, as will be seen from what has been said under (*b*), beyond the enumeration of the boundaries as gazetted.

2.—Protection and Improvement.

111. (*a*) *Establishment.*—Owing to the increase of area the number of revenue stations has been increased from seven to ten. The establishment now entertained stands as follows:—

Office.

		Rs.
1 Head Clerk	... ...	70
1 second ditto	... ...	20
2 Peons	... ...	16
		106

Protective Establishment.

				Rs.	
1 Ranger	on Rs. 60	per month	... ...	60	
9 Foresters	on „ 40	„ ...	... ...	360	
1 Forester	on „ 30	„ ...	... ...	30	
12 Foresters	on „ 20	„ ...	... ...	240	
1 Mohurir	on „ 10	„ ...	... ...	10	
13 Peons	on „ 8	„ ...	... ...	104	
			Total ...	804	per month.
			Add office establishment ...	106	
			Grand Total ...	910	per month.

In addition, two boats with crews were entertained for each station, at a total monthly expenditure of Rs. 982. As the hire of the boats came very high, and as the boats were generally old and often unsafe, arrangements were made to build 23 departmental boats. They were commenced in 1876-77 and have just been completed. It is expected that a considerable saving will thereby be effected.

112. (*b*) *Buildings.*—Hitherto the revenue station establishments used to live in their boats. This is highly objectionable, and arrangements were, therefore, made to build a cheap house at each station. During the year under review two were completed, one at Bussuntpore and one at Bhudder, and since the close of the year three more have been erected.

113. (*c*) *Reproductive Measures.*—Natural reproduction is so powerful and so fast in the Sunderbuns that special measures are not necessary, at any rate for the present.

114. By the direction of Government two small experimental plantations were made during the year, one of baobab and one of bamboos.

Baobab.—In September 1876 we planted 192 baobab seedlings, received from the Superintendent, Botanical Gardens, Calcutta, in block No. 216, situated on the northern edge of the unleased Sunderbuns. The plants were put on low ridges, to protect them against very high tides, and so far they have done fairly well, only four having died. The future will show whether they are able to stand the excessive moisture.

Bamboos.—In order to ascertain whether bamboos could be grown to advantage in the Sunderbuns for the manufacture of paper stock, 1,190 root offsets, partly of *Bambusa tulda* and partly of *Bambusa balcooa*, were planted on a piece of ground adjoining the baobab plantation during April, May, and June of this year. The planting was done in lines six feet apart and three feet distant within the lines. Great care was taken in the selection of the root offsets, and the first 317 were planted by Mr. Richardson personally, assisted by the forester, so as to ensure their being put down properly. Out of the number of 1,190 only 92 were alive on the 1st July—namely, 78 *Bambusa tulda* and 14 *Bambusa balcooa*, and these were looking so sickly that they were not expected to live. Mr. Richardson has no doubt that the root offsets have been killed by the excessive moisture. One of the roots was pulled up and examined, when it was found to be quite black and rotten, although

it had been planted out only a short time. There can be no doubt that bamboos will not grow on land which is flooded by high tides.

114. (*f*) *Breaches of forest rules.*—The following prosecutions were instituted during the year:—

Injury to forests by fire	...	2	cases, involving	2	persons.
Unauthorized felling of trees	...	218	„ „	215	„
Total	...	220	„ „	217	„

In 117 cases, involving 114 persons, convictions were obtained.

115. On the whole it may be stated that the number of forest offences has considerably decreased towards the close of the year. Early in November 1876 a small steamer was put at the disposal of this department, which has enabled the officer in charge to visit not only the revenue stations regularly, but also any part of the reserve, and within a short time. The effect of this is that defaulters do not feel safe, and as the penalty prescribed in the Forest Act is confiscation of the boats, they find it too risky to defraud Government, and prefer paying the revenue.

3.—Yield and Working.

116. With the exception of transferring 311 logs from Dumria to Khoolna, to be used in the construction of departmental boats, no timber operations have been carried on by Government agency.

117. The system of working the reserve has been that introduced in 1875-76, and described in paragraphs 115 to 120 of the report for that year. There are now ten revenue stations situated at convenient points near the eastern, northern, and western boundaries, where the boatmen take out passes by paying for the produce which they intend to remove. Payment is made by the maund at the following rates:—

For soondry timber	...	...	...	1 anna per maund.
„ other produce	...	...	...	1 pice „

118. The following table exhibits the quantities of material removed during the year:—

Description of Timber.	Boats.	Rafts.	Logs.	Maunds.	Amount realised and due.	Rate.	Remarks.
					Rs. A. P.	Rs. A. P.	
Soondry timber	1,100	39	67	1,59,873¼	9,992 1 6	0 1 0	
Keora ditto	13	.....	.....	2,927	45 11 9	0 0 3	
Goran posts	1,623	.....	.....	58,630¼	9,161 0 2	0 0 3	
Poshur ditto	2	.....	.....	621	12 13 3	0 0 3	
Firewood	6,890	.....	.....	29,68,973¼	46,390 3 5	0 0 3	
Confiscated wood	.....	.....	.....	.....	8 4 6	.....	By public auction.
Ditto soondri	.....	.....	147	7,872	492 0 0		
Ditto firewood	6	.....	.....	8,000	453 0 0		
Ditto golepatta, four puns ...	.....	.....	.....	.....	1 0 0		
Golepatta	3,921	.....	.....	10,20,652	15,947 11 2	0 0 3	
Cane	71	.....	.....	4,548	71 1 0	0 0 3	
Nul	215	1	.....	48,780	762 3 0	0 0 3	
Shells	152	.....	.....	42,080	657 8 0	0 0 3	
Wax and honey	7	.....	.....	.....	78 0 0	1 0 0	Per man.
Total ...	13,999	40	214	43,18,157¾	54,072 9 9		
Add balance due on account of previous years.	.....	.....	.....	.....	3 0 0		
Total ...	.....	.....	.....	.....	54,075 9 9		

It will be observed that 13,999 boats entered the reserve, which removed 4⅓ million maunds of forest produce. There can be no doubt that considerable quantities of produce were taken away without payment, and especially so during the first eight months of the year. The steamer made over to the department in November 1876 has enabled the officer in charge of the division

to exercise a much better control over the revenue stations as well as over the reserve. It appears certain that the quantity of forest produce legally removed during the year 1877-78 and paid for will surpass six millions of maunds, and perhaps reach seven millions.

4.—Financial Results.

119. The financial results stand thus:—

	Rs.	A.	P.
Receipts	84,167	10	1
Charges	40,166	11	0
Surplus ...	44,000	15	1

To this sum should be added the difference in the value of stock at the end of the year as compared with that at the beginning, amounting to Rs. 3,864-15-8, so that the net results of the year exhibit a surplus of Rs. 47,865-14-9, which is satisfactory. The receipts of 1877-78 are sure to amount to more than a lakh of rupees, while the charges are estimated at Rs. 38,000; so that a surplus of Rs. 60,000 may safely be expected.

E—CHITTAGONG DIVISION.

1.—Area and Boundaries.

120. (*a*) *Changes in area.*—There have been no changes during the year the total area of reserve remaining at 570 square miles, consisting of—

The Maiani reserve	339	square miles.
„ Sitapahar ditto	8	„
„ Matamahari ditto	223	„
Total ...	570	„

121. (*b*) *Demarcation.*—All the demarcation which is required for the present has been done in 1875-76. A small portion of the north boundary of the Matamahari reserve was left undone, but on inspection it was found to consist of so steep a precipice that no demarcation is required.

122. (*c*) *Boundary Record.*—The greater portion of the boundary of Sitapahar was surveyed in 1875-76. Mr. Chester started from Chittagong with all the field books on the 31st October 1876, in order to complete the work. He was, however, caught by the cyclone and driven in his boat across country towards the sea. After some hours of helpless drifting about the boat was dashed against a tree, up which Mr. Chester scrambled, and where he spent the night up to his waist in water for some hours. He fortunately escaped being drowned, but the boat was upset and all the survey records lost. Shortly after the cyclone Mr. Chester was taken ill with cholera, so that it was not until towards the close of the year that the survey of the Sitapahar reserve boundaries could be resumed. It is expected that the record will be completed early during the next working season.

2.—Protection and Improvement.

123. The system followed in Chittagong is this, that the reserves are not to be worked for timber for the present, and that the material is to come from the district or unreserved forests.

124. (1) The *Maiani* reserve comprises the valley of the Maiani river; hence its boundaries are formed by water-sheds on the north, east, and west, leaving only three and a half miles of artificial boundary on the south. For the protection of the reserve a forester and four watchers are entertained. The officer in charge of the division has satisfied himself during his inspection that the south boundary has been kept open, and that the reserve has been thoroughly protected during the year. The cultivators formerly living inside have all left, and no cutting has been done.

As mall beginning towards creeper-cutting has been made, and it is proposed to do this on a larger scale during the coming working season.

125. (2) The *Matamahari* reserve has water-sheds for boundaries on the south, east, and west: it has been treated in the same way as the Maiani reserve. A forester and four watchers are employed to keep the northern artificial boundary open and to prevent cultivation and the cutting of timber.

These two blocks are timber reserve.

126. (3) The *Sitapahar* reserve has been taken up for planting purposes. It is situated on the banks of the Kurnafooli, and can be reached not only by large boats, but even by river steamers. It is situated 35 miles from Chittagong. As stated above, the area of this reserve amounts to about eight square miles, or 5,000 acres.

Up to the 31st March 1876 an area of 171 acres had been planted with teak and a limited quantity of toon. It will be seen from previous reports that great difficulties were experienced in obtaining the necessary labour, and we have therefore imported 69 coolies during the year under review. These people arrived in April and May 1876, when it was of course too late to clear land for an extension. Hence the work during the rainy season of 1876 was confined to filling up all vacancies in the 171 acres planted previously with about 13,000 seedlings. During the cold weather of 1876-77 close on 100 acres were prepared for planting, and 16 bags of teak and a quantity of toon seed were sown in nurseries, so that a good extension is likely to be made in 1877-78.

An inspection bungalow has been commenced during the year and completed since at a cost of Rs. 500; in addition the coolies have all been comfortably housed.

The reserve has been successfully protected against fire during the year.

3.—Yield and Working. 4.—Financial Results.

127. As mentioned above, the reserves have not been worked for timber. The right to cut sunn grass in the Sitapahar reserve was sold by public auction and realized Rs. 1,272. The revenue derived from minor produce removed from the other reserves cannot be given separately, as it is included in the revenue derived from the unreserved forest.

F.—SINGBHOOM, HAZAREEBAGH, AND SONTHAL PERGUNNAHS.

128. The three reserves situated in these three districts have not yet been taken over by this department. For the Sarunda Pir, in Singbhoom, comprising about 400 square miles, an officer will be made available from November 1877.

129. It is now doubtful whether the Koderma and Damin-i-koh tracts will or can be retained as reserves; and as the question will be decided during the present year, it is advisable to let the record of further details stand over until next year's report.

SECTION III.—UNRESERVED OR DISTRICT FORESTS.

130. The Forest Department has only in two divisions to do with unreserved forests.

1.—JULPIGOREE DIVISION.

131. In the Julpigoree division there are some small blocks aggregating in area about 20 square miles. Of these 12 square miles have been declared reserves since the close of the year, so that only 8 square miles remain. It is intended to take whatever timber is fit for the axe out of these forests, and to let them become available for agricultural purposes, if required for that purpose hereafter.

2.—CHITTAGONG DIVISION.

132. In the Chittagong division an estimated area of 5,100 square miles is more or less covered with unreserved forest. In these the people of the

Chittagong Hill Tracts, numbering about 80,000, live and jhoom. Hence it was decided in 1875—

(1) that the management of these forests should rest with the Deputy Commissioner of the district;

(2) that the people should be allowed free of charge all forest produce necessary for their domestic requirements, with such restrictions as the Deputy Commissioner may impose from time to time;

(3) that all forest produce taken beyond the limits of the Hill tracts shall be paid for according to certain rates, the revenue to be collected by the Forest Department in the shape of a toll on the rivers coming from the Hill Tracts;

(4) that no logs of jarul, gamhar, chaplis, kandeb, toon, chikarassi, and telsur shall be allowed to be exported unless they measure 4 feet 6 inches in girth measured 4 feet 6 inches from the thick end; and

(5) that, with the view of discouraging the preparation of dug-outs and the excessive consumption of jarul, the payments for dug-outs and for jarul timber shall be enhanced 50 per cent., and that the export of dug-outs of jarul shall be prohibited altogether.

It will thus be observed that the operations of this department are restricted to the collection of the revenue and to the enforcement of the restrictions mentioned under (4) and (5).

133. For some years past the working of the revenue stations has not been on as satisfactory a footing as might have been the case, owing to the absence of a proper Forest Act. There seems to be some prospect now of a new Act being passed soon. As far as practicable, the absence of formal legal protection has been successfully supplanted by judicious management of the officer in charge of the division, but his difficulties have no doubt been great.

134. We have instituted five prosecutions during the year, in which 10 persons were involved. Two convictions, concerning six persons, were obtained, and two cases, involving three persons, were pending at the close of the year.

The counter-case mentioned at the end of paragraph 41 of last year's report as pending has been concluded during the year, and the parties who brought the false charge against our forester were sentenced to six months' rigorous imprisonment each.

Yield and Working.

135. The subjoined table shows the material exported from the Hill Tracts during the last six years, as far as the data are available:—

Description of Produce.	Years.					
	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.
	Cubic feet.	Cubic feet.	Cubic feet.	Cubic feet.	Cubic feet.	Cubic feet.
Timber in logs	22,150	52,800	30,500	56,500	51,600	26,616
" in boats	9,760	43,560	65,600	151,760	98,520	65,589
" beams and planks	33,640	760	20,300	44,400	7,080	11,433
Total of timber ...	65,550	97,120	116,400	252,660	157,200	103,638
Orah bamboos, number	.....	.....	.....	196,397	163,115	105,985
Dolu " "	.....	.....	.....	641,426	726,120	496,734
Muli " "	.....	.....	.....	26,816,140	17,754,391	14,262,743
Sunn grass, bundles	.....	.....	.....	6,022,121	4,957,644	4,529,443
Canes, number	.....	.....	.....	2,327,913	4,869,858	3,244,500
Gurjun-oil, maunds	.....	.....	.....	216	816	365

Financial Results.

136. Corresponding with the above data, the financial results stand as follows:—

	Years.					
	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Receipts	47,558	61,400	72,041	1,13,196	87,601	65,654
Expenditure	8,479	10,195	12,685	14,588	22,648	26,209
Surplus ...	39,079	51,205	59,356	98,608	64,953	39,445
Area of reserves, in square miles	.....	.....	.....	347	570	570

137. It will be observed that there was a steady rise in the quantity of material removed and in the revenue collected from 1871-72 until 1874-75, and a falling off since 1874-75. The latter is difficult to explain. It has been put forward that the falling off is due to the rates, according to which revenue is collected, having been raised in 1875; but this cannot be the case, because the rates for bamboos, canes, and for most of the timber in the log have not been raised at all, and the increased rate for boats and jarul timber fixed in 1875 did in reality not come into force until the 1st April 1877. Another explanation advanced is that the closing of the reserves against cutting has caused the falling off; but that is not likely, because if there was the demand in the Chittagong regulation district, the necessary material would be taken from the unreserved forests.

138. The only explanation which the Conservator can give is this:—

(1) The market was overstocked with material in 1874-75, and in consequence the revenue fell off in 1875-76; and

(2) The cyclone of 1876 interfered with the export, because the heavy winds had obstructed the floating streams, and subsequently the serious outbreak of cholera prevented the revival of the export. The average outturn of timber during the last six years amounts to 113,233 cubic feet per annum; hence the excessively large outturn of 1874-75, amounting to 252,660 cubic feet, was not normal, and cannot be expected every year. At all times the outturn and the revenue will depend on the demand in the Chittagong regulation district, which, as in the case of all other articles of trade, will fluctuate.

SECTION IV.—GENERAL REMARKS.

1.—List of Trees and Shrubs growing in the Darjeeling District.

139. Mr. Gamble has been busy collecting materials for this list since 1873. In January 1877 orders were received regarding his appointment as Assistant to the Inspector-General of Forests. Although the materials for the list were not quite complete as yet, it was considered essential that Mr. Gamble should draw it up before leaving Bengal, and he was accordingly relieved of all other duties for six weeks. The list is now in the press, and it will be a great assistance to forest officers serving in the Eastern Himalayas.

2.—Conservator's Tours.

140. During the month of April 1876, the Conservator inspected the forests in the Darjeeling Terai, in May 1876 those in the Dumsong Sub-

division, and in June the Bramunpokri plantation in the Terai. On the 10th September he proceeded to Simla on duty, whence he returned on the 30th of that month. On the 4th November the Conservator proceeded to Dacca, to establish a timber depôt, proceeding from that place on a tour through the Sunderbuns; he then went to the Shahabad district and examined the Rohtas reserves on the Khymore range. This was followed by a tour through the Palamow forests, whence the Conservator returned to head-quarters, arriving there on the 20th January 1877. The end of January and the beginning of February were spent in visiting the Terai forests. During the end of February and the first half of March the Conservator was in Calcutta, assisting in the discussion of a new Forest Act, and towards the end of March 1877 he inspected the demarcation work in Dumsong.

3.—Services of Officers.

141. This report will, the Conservator hopes, show that the officers of the department have, on the whole, done a good year's work.

Mr. A. L. Home, Deputy Conservator of Forests, 2nd grade, was in charge of the Sunderbuns division from the beginning of the year until the 4th August 1876, when he was transferred to the Government of India. In him we have lost a most energetic and pains-taking divisional officer.

Mr. W. Jacob, Deputy Conservator of Forests, 2nd grade, was transferred from the Central Provinces to Bengal, in Mr. Home's place. He was in charge of the Sunderbuns division from 5th August 1876 until November 1876, when he went on short leave. On his return in January 1877 he was posted to the Palamow division.

Mr. J. C. MacDonell, Deputy Conservator of Forests, 3rd grade, was in charge of the Julpigoree division throughout the year, and he administered the division to the Conservator's satisfaction.

Mr. H. H. Davis, Assistant Conservator, 1st grade, has continued to hold charge of the Chittagong division, with the exception of four months, part of which he spent on leave and the rest in temporary charge of the Sunderbuns division. He has worked satisfactorily.

Mr. J. S. Gamble, B.A., Assistant Conservator, 1st grade, held charge of the Darjeeling division until the end of the year, when he was appointed Assistant to the Inspector-General of Forests. He is an officer of great knowledge, whose loss for Bengal is highly to be regretted.

Mr. W. Johnston, Assistant Conservator, 2nd grade, attached to the Conservator's office, selected in the early part of the season reserves in Dumsong; he next demarcated, preliminarily, the reserve in the Sonthal Pergunnahs, and he then examined the Berhampore sâl forests. He has continued to work to the Conservator's satisfaction.

Mr. E. Fuchs, Assistant Conservator, 2nd grade, was in charge of the Buxa sub-division throughout the year. He deserves great credit for the manner in which he has discharged his duties—in the demarcation of reserves as well as in the management of the Buxa reserve.

Mr. G. A. Richardson, Assistant Conservator, 2nd grade, was in charge of the Palamow division until January 1877, when he was transferred to the Sunderbuns. He is an exceedingly good practical officer.

Messrs. E. G. Chester, F. B. Manson, and F. H. Bonham Carter have worked to the Conservator's satisfaction, but neither of them has as yet passed in the vernacular. Mr. Chester was attached to the Chittagong division, and he held charge of it for four months during Mr. Davis' absence. Mr. Manson was in charge of the Terai sub-division, Darjeeling, and Mr. Bonham Carter was employed on the demarcation of the Dumsong reserves; they have both been of great assistance to Mr. Gamble, the divisional officer.

142. The health of the officers and of the subordinate establishments has been fairly good during the year, considering the very unhealthy condition of most of the Bengal forests.

ANNUAL FORM No. 45.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Reserved Forests, 1876-77.

Division or Range.	Name of Forest.	Area on 1st April 1876.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March 1877.		No. and date of Notification of additions and transfers, &c.
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	
Darjeeling division	Terai forests ...	31	.....	2	.....	.....	.....	33*	.....	Notification dated 4th November 1876.
	Hill forests, west of Teesta.	75	.....	3	.....	.....	.....	78†	.....	
	Dumsong	.....	.....	50	.....	.....	.....	50	.....	Notification dated 9th September 1876.
	Total ...	106	.....	55	.....	.....	.....	161	.....	
Julpigoree division	Apalchand forest	30	.....	.....	.....	4	.....	26	.....	Notification, dated 19th September 1876, revising the Julpigoree reserves.
	Tundu	.....	.....	73	.....	.....	.....	73	.....	
	Dainah	2	.....	22	.....	.....	.....	24	.....	
	Muraghat	17	.....	.....	.....	.....	.....	17	.....	
	Borojhar	.....	.....	55	.....	.....	.....	55	.....	
	Buxa	110	.....	34	.....	.....	.....	144	.....	
	Raidak	.....	.....	20	.....	.....	.....	20	.....	
	Dhumpara	.....	.....	11	.....	.....	.....	11	.....	
	Bholka	.....	.....	20	.....	.....	.....	20	.....	
	Total ...	159	.....	235	.....	4	.....	390	.....	
Palamow division...	Palamow	151	.....	.....	.....	.....	.....	151	.....	Notification dated 31st July 1876.
	Bhotas	.....	.....	37	.....	.....	.....	37	.....	
	Total ...	151	.....	37	.....	.....	.....	188	.....	
Sunderbuns division	Sunderbuns forests	1,199	.....	382	.....	.....	.....	1,581	.....	Notification dated 1st August 1876.
	Total ...	1,199	.....	382	.....	.....	.....	1,581	.....	
Chittagong division	Maiani forest ...	339	.....	.....	.....	.....	.....	339	.....	
	Sitapahar	8	.....	.....	.....	.....	.....	8	.....	
	Matamahari ...	223	.....	.....	.....	.....	.....	223	.....	
	Total ...	570	.....	.....	.....	.....	.....	570	.....	
Singbhoom	Saranda Pir ...	400	.....	.....	.....	.....	.....	400	.....	‡ Notification dated 10th July 1876.
Hazareebagh ...	Koderma jungles	.....	.....	60	.....	.....	.....	60	.....	
Sonthal Pergunnahs	Damin-i-Koh ...	.....	.....	40	.....	.....	.....	40	.....	
	Total ...	400	.....	100	.....	.....	.....	500	.....	
	GRAND TOTAL ...	2,585	.....	809	.....	4	.....	3,390	.....	

* Addition due to correction of area.
† Ditto of two square miles to correction of area.
‡ Approximate areas.

ANNUAL FORM No. 45 —[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Unreserved Forests, 1876-77.

Division or Range.	Area on 1st April 1876.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March 1877.		Number and date of Notification of additions and transfers, &c.	Remarks.
	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
Julpigoree Division ...	184	.....	20	.....	184	.....	20	.....	19th September 1876.	Only forests from which the Forest Department derives revenue have been included.
Chittagong ditto ...	5,100	.....	.....	.....	.....	.....	5,100	.....		
Total ...	5,284	.....	20	.....	184	.....	5 120	.....		

ANNUAL FORM No. 46.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Plantations, 1876-77.

NAME OF PLANTATION.	ON 1ST APRIL 1876.		DURING 1876-77.		ON 31ST MARCH 1877.	
	Area.	Total Cost.	Area added.	Cost.	Total Area.	Total Cost.
	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.
Darjeeling Division.						
Rungbul	144	11,223 10 3	.....	2,010 7 9	144	13,234 2 0
Bamunpokri	124	17,007 2 0	31	5,929 4 3	155	23,936 6 3
Dhobi Jhora	42	32 0 0	.....	.....	42	32 0 0
Rungyrum, Spanish chestnut	1	205 11 6	2	427 3 0	3	632 14 6
Sibhok, India-rubber	.....	128 4 6	.....	209 8 6	.....	337 13
Julpigoree Division.						
Fallacotta	3	216 12 11	.....	.....	3	216 12 11
Sunderbuns Division.						
Baobab	.....	.....	1	55 12 11	1	55 12 11
Chittagong Division.						
Sitapahar	171	7,759 6 9	.....	6,612 13 6	171	14,372 4 3
Pahartulli	5	324 14 6	.....	.....	5	324 14 6
Total ...	490	37,497 14 5	34	15,245 1 11	524	52,743 0 4
Add—						
Amount expended on account of seed collected for the Superintendent, Botanical Garden, Calcutta, and charged under A. IV2a.	.....	.....	.....	21 15 9	.....	.....
Grand Total charged under A. IV2a. ...	.....	.....	.....	15,267 1 8	.....	.....

ANNUAL FORM No. 47.

FOREST DEPARTMENT, BENGAL.

Area of Forest Tracts protected from fire during the dry season of 1876-77.

DIVISION.	Forest Tracts.	UP TO 1ST APRIL 1876.		DURING DRY SEASON OF 1876-77.				Total cost up to 30th June 1877.	Year when protection commenced.	REMARKS.
		Area actually protected.	Total cost.	Area attempted to be protected.	Failures.	Area actually protected.	Amount expended.			
			Rs. A. P.				Rs. A. P.	Rs. A. P.		
DARJEELING	Sibhok	.....	439 0 6	1,554	.....	1,554	45 1 0	484 1 6	1876-77	Burnt in 1875-76.
	Bamunpokri ...	.....	.....	1,373	.....	1,373	1,212 14 0	1,212 14 0	1876-77	
JULPIGOREE	Muraghat ...	.....	260 6 0	10,920	20	10,900	.....	260 6 0	1876-77	Ditto.
	Buxa reserve, Rajabhat khawa, and Poro blocks.	.....	.....	47,360	60	47,300	288 4 9	288 4 9	1876-77	Expenditure nominal, as the boundaries were demarcated during the year.
CHITTAGONG	Sitapahar reserve ...	.....	.....	5,000	.....	5,000	.....	.....	1876-77	The small expenditure has been included under cost of plantation.
	Total ...	.....	699 6 6	66,207	80	66,127	1,546 3 9	2,245 10 3	.....	

ANNUAL FORM No. 48.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL

Prosecutions for Breaches of Forest Rules, 1876-77.

FOREST DIVISION AND CIVIL DISTRICT.	Injury to forests by fire.		Unauthorized felling or appropriation of wood and minor forest produce.		Grazing without permission or in tracts in which grazing is prohibited.		Other offences.		TOTAL.			
									Prosecutions.		Convictions.	
	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.
Darjeeling Division	.....	.....	5	16	.....	.....	.....	.....	5	16	5	16
Julpigoree ditto	1	1	1	1	.....	.....	1	1	3	3	3	3
Palamow ditto	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	..
Sunderbuns ditto	2	2	218	215	.....	.....	.....	.....	220	217	117	114
Chittagong ditto	.....	.....	.....	.....	.....	.....	5	10	5	10	2	6
Total ...	3	3	224	232	.....	.....	6	11	233	246	127	139

ANNUAL FORM No. 49.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Annual Summary of Revenue and Expenditure of the different Divisions during 1876-77.

BUDGET HEADS.	Direction.	Darjeeling Division.	Julpigoree Division.	Palamow Division.	Sunderbuns Division.	Chittagong Division.	Area transactions adjusted during the year.	Civil officers' collections and expenditure.	TOTAL.
REVENUE.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
I.—Revenue from Wood—									
1. Brought to depôt by departmental agency—									
a.—Timber	.....	31,417 5 1	10,934 12 6	92 8 0	6 7 6	.....	226 12 6	.....	42,677 13 7
b.—Firewood and charcoal	.....	1,591 9 6	.....	.....	.....	.....	.....	.....	1,591 9 6
c.—Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. Wood removed from the forests by purchasers, license-holders, and permit-holders—									
a.—Timber	.....	12,822 12 6	3,519 0 0	4 2 0	19,211 10 8	45,343 0 3	.....	.....	80,700 9 5
b.—Firewood and charcoal	.....	3,060 2 7	41 14 0	1 1 0	46,393 3 5	.....	.....	.....	49,496 5 0
3 From confiscated drift and waif wood	.....	637 13 0	239 8 0	.....	954 4 6	.....	.....	.....	1,831 9 6
II.—Revenue from Minor Produce—									
1. Grazing dues and sale of grass	.....	2,443 0 11	268 6 9	305 9 3	.....	.....	.....	.....	3,017 0 11
2. Other minor produce	.....	461 11 8	.....	387 5 3	17,516 7 2	16,243 14 2	.....	.....	34,609 6 3
III.—Duty on Produce of Foreign or Private Forests imported into British Territory—									
1. On wood	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. On other forest produce	.....	.....	.....	.....	.....	.....	.....	.....	.....
IV.—Miscellaneous—									
1. From fines and foreitures	.....	158 8 0	220 5 1	11 12 0	77 9 0	.....	.....	.....	468 2 1
2. From refunds to the Department	.....	4 2 0	130 9 5	.....	0 2 9	841 4 7	.....	.....	976 2 9
3. From other sources	87 8 0	2,866 14 0	379 12 0	451 15 4	7 13 1	3,226 0 0	.....	12 14 0	7,032 12 5
Revenue, total	87 8 0	55,463 15 3	15,534 3 9	1,254 4 10	84,167 10 1	65,654 3 0	226 12 6	12 14 0	2,22,401 7 5
EXPENDITURE.									
A.—Conservancy and Works.									
I.—Cost of Timber operations—									
1. On wood brought to depôt by departmental agency—									
a.—Timber	.....	14,336 15 11	23,825 1 3	477 0 6	104 13 11	.....	.....	.....	38,743 15 7
b.—Fire-wood and charcoal	.....	322 5 11	.....	.....	.....	.....	.....	.....	322 5 11
c.—Sandal wood	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. On wood removed from the forests by purchasers, license-holders, and permit-holders—									
a.—Timber	.....	.....	.....	.....	477 0 3	.....	.....	.....	477 0 3
b.—Fire-wood and charcoal	.....	.....	.....	.....	1,431 1 0	.....	.....	.....	1,431 1 0
3. On confiscated drift and waif wood	.....	.....	59 10 0	.....	127 5 11	.....	.....	.....	186 15 11
II.—[illegible] collecting minor produce—									
1. Grazing and sale of grass	.....	.....	1 0 0	.....	.....	.....	.....	.....	1 0 0
2. Other forest produce	.....	.....	.....	75 12 6	477 0 3	693 14 0	351 7 8	.....	1,598 2 5

III.—Cost of forest organization—									
1. Demarcation lines and boundary pillars or marks ...	.....	3,21 9 3	3,245 15 0	.....	21 0 11	354 12 0	.....	.....	6,832 5 2
2. Working plans ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
3. Surveys ...	94 7 7	.....	5 4 0	6 7 0	.....	29 9 0	.....	.....	135 11 7
IV.—Cost of the treatment and creation of forests—									
1. Natural forests—									
a.—Protection from fire ...	.....	53 5 0	129 5 3	55 7 6	.....	.....	.....	.....	238 1 9
b.—Fencing and enclosing ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
c.—Improvement and conservation ...	.....	64 12 0	1,053 1 9	.....	.....	.....	.....	.....	1,117 14 9
d.—Reboisement or restoration of denuded areas ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. Artificial forests—									
a.—Formation ...	.....	5,541 13 3	.....	21 15 9	55 12 11	6,636 13 6	.....	.....	12,256 7 5
b.—Protection from fire ...	.....	941 5 6	.....	.....	.....	.....	.....	.....	941 5 6
c.—Improvement and conservation ...	.....	1,859 8 9	.....	.....	.....	.....	.....	.....	1,859 8 9
d.—Fencing and enclosing ...	.....	233 12 0	.....	.....	.....	.....	.....	.....	233 12 0
V.—Rent of leased forests—									
VI.—Cost of collecting duty on produce of foreign or private forests imported into British territory—									
VII.—Works of utility for the development of forests—									
1. Roads and bridges ...	.....	2,233 12 2	1,573 3 3	.....	.....	.....	.....	.....	3,806 15 5
2. Buildings and offices ...	.....	1,714 11 4	1,716 0 5	8 4 6	243 1 0	194 10 0	.....	.....	3,876 11 3
3. Compensation for land taken up for forest purposes or for extinction of forest rights ...	.....	1,248 0 0	250 0 0	.....	.....	.....	.....	.....	1,498 0 0
4. Other works ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
VIII.—Cost of departmental cattle—									
1. Purchase of stock ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
2. Hire of stock ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
3. Feed and keep of cattle ...	.....	1,486 2 4	4,429 15 8	170 5 3	.....	669 1 2	.....	.....	6,754 8 5
IX.—Cost of departmental plant and tools—									
1. For timber and wood operations ...	.....	112 14 6	192 2 3	.....	.....	8 11 0	.....	.....	313 11 9
2. For other purposes ...	.....	1,198 0 3	363 1 3	407 0 0	4,694 0 1	81 5 0	.....	.....	6,743 6 7
X.—Miscellaneous charges—									
1. Refunds ...	.....	.....	192 0 0	0 4 0	29 0 9	.....	.....	.....	221 4 9
2. Law charges ...	.....	0 8 0	.....	.....	162 11 10	.....	.....	.....	163 3 10
3. Other charges ...	.....	495 8 8	.....	.....	13 1 6	.....	.....	.....	508 10 2
Total A.—Conservancy and works ...	94 7 7	35,054 1 10	37,035 12 1	1,222 9 0	7,836 2 4	8,577 11 8	351 7 8	.....	90,172 4 2
B.—Establishment.									
I.—Salaries—									
1. Pay of Conservator ...	14,400 0 0	.....	.....	.....	.....	.....	.....	.....	14,400 0 0
2. Pay of control and executive officers ...	3,785 7 8	11,093 8 8	9,583 0 10	2,600 0 0	9,454 13 4	6,500 0 0	.....	.....	43,016 14 6
3. Protective establishments ...	.....	4,393 11 7	5,103 8 3	2,077 13 8	7,478 5 8	7,687 1 2	.....	223 11 6	26,964 3 10
4. Office establishments ...	4,477 8 10	1,347 10 10	816 14 3	560 8 4	1,080 11 1	1,234 0 4	.....	.....	9,567 5 8
5. Deputation and special allowances ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
II.—Travelling allowances—									
1. Conservator ...	1,901 12 0	.....	.....	.....	.....	.....	.....	.....	1,901 12 0
2. Control and executive officers ...	1,159 9 0	2,711 4 0	1,753 7 0	415 2 10	2,996 5 0	1,789 4 0	386 0 0	.....	11,210 15 10
3. Protective establishments ...	.....	121 9 2	130 0 1	.....	.....	.....	.....	.....	251 9 3
4. Office establishments ...	203 6 11	163 10 4	29 9 4	30 14 1	84 7 9	101 9 3	.....	.....	613 9 8
III.—Contingencies—									
1. Stationery ...	.....	0 10 0	2 4 6	8 11 0	5 10 0	0 10 0	.....	.....	17 13 6
2. Carriage of tents and records ...	103 13 0	308 8 3	15 1 0	140 3 0	44 12 10	10 2 0	.....	.....	622 8 1
3. Pay of police guards ...	.....	.....	.....	.....	1,091 3 10	.....	.....	.....	1,091 3 10
4. Sundries ...	588 15 9	162 10 9	165 9 0	117 0 6	9,993 13 2	240 8 3	4 8 0	.....	11,272 1 5
5. Official postage ...	221 8 0	130 0 0	90 10 6	24 9 0	101 6 0	18 7 0	.....	.....	586 8 6
Total B.—Establishments ...	26,842 1 2	20,433 3 7	17,690 0 9	5,974 14 5	32,330 8 8	17,631 10 0	390 8 0	223 11 6	1,21,516 10 1
GRAND TOTAL EXPENDITURE ...	26,936 8 9	55,487 5 5	54,725 12 10	7,197 7 5	40,166 11 0	26,209 5 8	741 15 8	223 11 6	2,11,688 14 3

ANNUAL FORM No. 50.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Account Current for the year 1876-77.

DR.

	Rs. A. P.	Rs. A. P.
To cash in hand on the 1st April 1876	1,385 10 4	
		1,385 10 4
„ Revenue received	2,22,401 7 5	
		2,22,401 7 5
„ Remittances from State treasuries...	2,18,627 4 4	
„ Remittance from the Government Telegraph Department by transfer	54 15 1	
„ Remittance from the Government Mathematical Instrument Department by transfer ...	81 5 0	
„ Remittance from the Indian Medical Department by transfer	210 13 6	
„ Remittance from the Military Department by transfer ...	319 5 0	
		2,19,293 10 11
„ Remittance from the Government of the Punjab by transfer	450 0 0	
„ Remittance from the Government of the Central Provinces by transfer	700 0 0	
		1,150 0 0
„ Provincial Services, Police ...	835 11 11	
		835 11 11
„ Advances recoverable	92,528 14 1	
		92,528 14 1
„ Recovery of Advances made by the Accountant-General, Bengal	108 5 4	
		108 5 4
„ Revenue Deposits	12,499 11 9	
		12,499 11 9
„ Divisional Transfers	514 14 4	
		514 14 4
„ Uncovenanted Service Family Pension Fund	1,314 12 0	
„ Uncovenanted Service Annuity Fund	105 0 0	1,419 12 0
Total ...	.....	5,52,338 2 1

CR.

	Rs. A. P.	Rs. A. P.
By expenditure of the department—		
A ...	90,172 4 2	
B ...	1,21,516 10 1	
		2,11,688 14 3
„ Remittances to public treasuries...	1,96,319 10 1	
„ Remittances to the Military Department by transfer ...	1,422 0 0	
„ Remittance to the Public Works Department military works by transfer	855 0 0	
„ Remittance to the Public Works Department civil works by transfer...	7,841 10 6	
„ Remittance to Northern Bengal State Railway by transfer	18,820 15 4	
„ Remittance to the Government Mathematical Instrument Department by transfer	87 8 0	
		2,25,346 11 11
„ Advances recoverable	97,075 5 8	
		97,075 5 8
„ Revenue Deposits repaid ...	12,499 11 9	
		12,499 11 9
„ Divisional Transfers	514 14 4	
		514 14 4
„ Cash Balance in hand on the 31st March 1877	5,212 8 2	
		5,212 8 2
Total ...	.....	5,52,338 2 1

ANNUAL FORM No. 51.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Outstandings and Liabilities on account of the year 1876-77.

DIVISION.	DEPARTMENT DEBTOR.			DEPARTMENT CREDITOR.			BALANCE DUE.		REMARKS.
	At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	At commencement year.	Payments made during year.	At close of year.	To Department (outstandings).	By Department (liabilities).	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Direction	.....	250 0 0	250 0 0	.....	250 0 0	250 0 0	.....	.....	
Darjeeling Division ...	.....	44,695 5 6	44,695 5 6	5,793 6 6	47,152 7 8	52,945 14 2	8,250 8 8	.....	
Julpigoree „ ...	942 12 7	28,625 7 9	29,568 4 4	3,301 14 1	29,728 2 6	33,030 0 7	6,212 6 4	2,750 10 1	Rs. 50 recovered in the Darjeeling Division.
Palamow „ ...	.....	996 2 10	996 2 10	130 10 0	1,240 14 5	1,371 8 5	375 5 7	.....	
Sunderbuns „ ...	.....	14,839 4 2	14,839 4 2	333 2 11	15,873 12 10	16,206 15 9	1,367 11 7	.....	
Chittagong „ ...	.....	4,930 7 4	4,930 7 4	2,811 10 7	2,830 0 3	5,641 10 10	711 3 6	.....	Rs. 200 recovered in the Julpigoree Division.
Dacca (late)	.....	.....	.....	12 0 0	.....	12 0 0	12 0 0	.....	
Total ...	942 12 7	94,336 11 7	95,279 8 2	12,382 12 1	97,075 5 8	1,09,458 1 9	16,929 3 8	2,750 10 1	

ANNUAL FORM No. 52.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Outstandings on account of Revenue, 1876-77.

DIVISION.	Outstandings at commencement of year.	Value of sales and other revenue during year.	Total.	Amount realized during year.	Balance due to the Department at end of year.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	.....	87 8 0	87 8 0	87 8 0	.....
Darjeeling Division	88 9 2	56,042 6 1	56,130 15 3	55,463 15 3	667 0 0
Julpigoree "	388 0 0	15,556 3 9	15,944 3 9	15,534 3 9	410 0 0
Palamow "	.....	1,451 0 0	1,451 0 0	1,254 4 10	196 11 2
Sunderbuns "	.....	84,167 10 1	84,167 10 1	84,167 10 1	.....
Chittagong "	.....	65,654 3 0	65,654 3 0	65,654 3 0	.....
Collection by civil officers	.....	12 14 0	12 14 0	12 14 0	.....
Arrear transactions adjusted during the year ...	.....	226 12 6	226 12 6	226 12 6	.....
Total ...	476 9 2	2,23,198 9 5	2,23,675 2 7	2,22,401 7 5	1,273 11 2

ANNUAL FORM No. 53.

FOREST DEPARTMENT, BENGAL.

Statement of Trees felled during the year 1876-77.

Division.	Forest range.	Locality.	Description of trees.	On hand from previous year.		Felled during current year.		Total.		Disposed of during current year.			Closing balance.	
				No.	C. ft.	No.	C. ft.	No.	C. ft.	How disposed of.	No.	C. ft.	No.	C. ft.
Darjeeling	Shukna	Shukna Forest	Sal trees	.....	.....	240	.....	240	.....	Partly brought to depôt as logs and partly cut up into sleepers.	240	.....	.....	.....
		Do.	Jhanjees	.....	.....	50	.....	50	.....		50	.....	.....	.....
		Gulma Hill Forest	Sal trees	.....	.....	97	.....	97	.....		97	.....	.....	.....
		Rungdung do.	Do.	.....	.....	7	.....	7	.....		7	.....	.....	.....
		Choklong do.	Do.	.....	.....	12	.....	12	.....		12	.....	.....	.....
		Khooklong do.	Do.	.....	.....	64	.....	64	.....		64	.....	.....	.....
		Mahanadi do.	Do.	.....	.....	4	.....	4	.....		4	.....	.....	.....
		Berikh do.	Do.	.....	.....	184	.....	184	.....		184	.....	.....	.....
		Sibhok do.	Do.	.....	.....	28	.....	28	.....		28	.....	.....	.....
		Do. do.	Kala khambas	.....	.....	25	.....	25	.....	Brought to depôt	25	.....	.....	.....
	Teesta	Pashok do.	Sal trees	.....	.....	53	.....	53	.....	Do.	53	.....	.....	.....
			Total ...	.....	.....	764	.....	764	.....	Total ...	764	.....	.....	.....
Julpigoree	Apalchand	Rajadanga	Sal	.....	.....	405	.....	405	.....	Cut up into logs	405	.....	.....	.....
	Buxa	Block III Compartment No. 2 ...	Sal trees	.....	.....	55	.....	55	.....		55	.....	.....	.....
		Do. do. „ 5 ...	Do.	.....	.....	145	.....	145	.....		145	.....	.....	.....
		Do. do. „ 5 ...	Sissoo	.....	.....	110	.....	110	.....		110	.....	.....	.....
		Do. do. „ 7 ...	Sal	.....	.....	314	.....	314	.....		314	.....	.....	.....
		Do. do. „ 8 ...	Do.	.....	.....	599	.....	599	.....		599	.....	.....	.....
		Do. do. „ 9 ...	Do.	.....	.....	7	.....	7	.....		7	.....	.....	.....
		Do. do. „ 9 ...	Sissu	.....	.....	369	.....	369	.....		369	.....	.....	.....
		Do. do. „ 10 ...	Sal	.....	.....	1,224	.....	1,224	.....		1,224	.....	.....	.....
		Do. do. „ 10 ...	Sissoo	.....	.....	201	.....	201	.....		201	.....	.....	.....
	.....	On new roads	Sal, &c.	.....	.....	289	.....	289	.....		289	.....	.....	.....
			Total ...	.....	.....	3,718	.....	3,718	.....	Total ...	3,718	.....	.....	.....
Palamow	.....	Betlah	Bamboos	.....	.....	74,720	.....	74,720	.....	Brought to depôt	74,720	.....	.....	.....
			Total ...	.....	.....	74,720	.....	74,720	.....	Total ...	74,720	.....	.....	.....

ANNUAL FORM No. 55.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Timber and other produce brought to Depôt from the different Forest Divisions, 1876-77.

Depot.	Forest.	Description of Timber, &c.	Number of		Total of each Division.		Remarks.
			Pieces.	Cubic feet.	Pieces.	Cubic feet.	
	Darjeeling Division.						
Julpigoree ...	Sibhok	Sâl logs	190	5,805	.....	.....	Transferred from Sibhok depôt.
	Ditto	Kala khambas ...	191	.....			
Silligoree ...	Lohagarhi... ...	Sâl n. g. sleepers ...	218	291			
Sibhok ...	Sibhok	Sâl	77	2,943			
	Ditto	Kala khambas ...	443	.....			
	Kooklong	Sâl	1	55			
	Reyang	"	41	1,247			
	Gulma	"	26	700			
	Berikh	"	30	1,105			
	Teesta river ...	Sâl b. g. sleepers ...	22	73			
Rukti ...	Shukna	Sâl	8	321			
	Ditto	Kala khambas... ...	49	.....			
Shukna ...	Shukna	Sâl	63	2,336			
	Ditto	Sâl n. g. sleepers ...	4,026	5,360			
	Ditto	Scantlings	274	1,752			
	Ditto	Kala khambas ...	57	.....			
	Moorgong	Ditto	9	.....			
	Mahanadi ...	Sâl	27	764			
	Ditto	Sissu	4	41			
	Kookmalong ...	Sâl	38	1,433			
	Gulma	b g. sleepers	162	545			
	Ditto	n. g. ditto	5,787	7,716			
Poshok ...	Poshok	Sâl	95	6,962			
Rungbool ...	Rungbool	Fenders	1,070	2,140	12,908	41,589	
	Julpigoree Division.						
Julpigoree ...	Apalchand ...	Sâl logs	189	5,334			
	Teesta river ...	Sissu drift	5	58			
	Ditto	Kala khambas... ...	37	.....			
Alipore ...	Buxa	Sâl	2,911	75,019			
	Ditto	Khair	10	128			
	Ditto	Sissu	202	3,231			
	Ditto	Miscellaneous	15	226			
	Ditto	Kala khambas... ...	75	.....			
Dacca* ...	Buxa	Sâl	915	21,865			These have been transferred from the Alipore depôt, and not from the forest direct.
	Ditto	Sissu	10	125			
	Ditto	Khair	8	103			
	Ditto	Katoos	5	61	.....	.....	
	Ditto	Chilauni	3	42			
	Ditto	Sida	3	53			
	Ditto	Kala khambas... ...	47	.....	4,435	104,845	
	Soonderbuns Division.						
Dumria ...	Sunderbuns ...	Soondri timber ...	45	257			
Khoolna ...	Ditto	Ditto ditto ...	336	3,263	381	3,520	Transferred from Dumria.
		Total ...	.....	.....	17,724	149,354	
	Darjeeling Division.		Mds.		Mds.		
Bamunpokri ...	Bamunpokri ...	Firewood	8,875				
Punchanai ...	Converted from rejected sleepers.	.....	450		9,325		
	Palamow Division.		Pieces.		Pieces.		
Dehri ...	Betla	Bamboos	64,312				
Daltongunge ..	Ditto	Ditto	10,408		74,720		

ANNUAL FORM No. 56.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Account of Timber and other Produce, 1876-77.

Particulars.		Pieces. No.	Pieces. Cub. ft.	Total. No.	Total. Cub. ft.
Balance in hand at commencement of year.					
Darjeeling Division	Toon	65	583		
	Sál	213	6,389		
	Sissu	1,699	7,909		
	Khair	2	14		
	Sál b. g. sleepers	4,889	16,297		
	„ n. g. „	2,112	2,818		
	Scantlings	326	409		
	Kala khambas	699	.....	9,405	34,321
Julpigoree Division	Toon	3	93		
	Sál	1,665	40,957		
	Sissu	1	28		
	Serol	1	22		
	Sleepers	51	168		
	Scantlings	83	15		
	Kala khambas	4	.....	1,808	41,283
Sunderbuns Division	Soondri timber	266	2,764	266	2,764
Received during the year from forests.					
Darjeeling Division	Sál	362	16,036		
	Sissu	4	41		
	b. g. sleepers	184	619		
	n. g. „	10,031	13,367		
	Scantlings	274	1,752		
	Fenders	1,070	2,140		
	Kala khambas	526	.....	12,451	33,954
Julpigoree Division	Sál	3,056	76,655		
	Sissu	207	3,290		
	Miscellaneous	20	272		
	Kala khambas	105	.....	3,368	80,217
Transferred during the year from one depôt to another.					
Darjeeling Division	Sál	234	7,635		
	Kala khambas	223	.....	457	7,635
Julpigoree Division	Sál	979	23,563		
	Sissu	10	124		
	Miscellaneous	24	341		
	Kala khambas	54	.....	1,067	24,028
Sunderbuns Division	Soondri timber	311	3,021	311	3,021

Particulars.		Pieces. No.	Pieces. Cub. ft.	Total. No.	Total. Cub. ft.
Removed by purchasers.					
Darjeeling Division	Toon	65	583		
	Sál	194	8,473		
	Sissu	607	4,655		
	b. g. sleepers	4,918	16,398		
	n. g. „	9,044	12,059		
	Scantlings	530	1,789		
	Fenders	1,070	2,140		
	Kala khambas	869	.....	17,297	46,099
Julpigoree Division	Toon	2	72		
	Sál	514	13,632		
	Sissu	2	36		
	Kala khambas	46	.....	564	13,740
Sunderbuns Division	Soondri timber	4	34	4	34
Lost and used by the Department.					
Darjeeling Division	Sál	1	27		
	By dryage	.....	309		
	Sissu	1	13		
	b. g. sleepers	118	394		
	n. g. „	49	63		
	Scantlings	3	50		
	Kala khambas	.....	.....	172	856
Julpigoree Division	Sál	22	207	22	207
Transferred from one depôt to another.					
Darjeeling Division	Sál	234	7,635		
	Kala khambas	223	.....	457	7,635
Julpigoree Division	Sál	979	23,563		
	Sissu	10	124		
	Miscellaneous	24	341		
	Kala khambas	54	.....	1,067	24,028
Sunderbuns Division	Soondri timber	311	3,021	311	3,021

Received during the year by confiscations.

Sunderbuns Division	Soondri timber	70	499	70	499
	Total ...	.....	.....	29,203	2,27,722

		Mds.	Mds.
Darjeeling Division ...	Firewood { Balance in hand at commencement of year.	6,036	.....
	Firewood { Received during the year ...	9,325	15,361
	Total ...	.....	15,361
		No.	No.
Palamow Division ...	Bamboos { Balance in hand at commencement of year.	.....	.....
	Bamboos { Received during the year ...	74,720	74,720
	Total ...	.....	74,720

Balance in hand at close of year.

Darjeeling Division...	Sál	380	13,616		
	Sissu	495	3,182		
	b. g. sleepers	37	123		
	n. g. „	2,037	2,716		
	n. g. „ rejected	1,013	1,347		
	Scantlings	67	322		
	Khair	3	14		
	Kala khambas	356	.....	4,387	21,320
Julpigoree Division	Toon	1	21		
	Sál	4,165	103,773		
	Sissu	206	3,282		
	Miscellaneous	21	294		
	b. g. sleepers	51	168		
	Scantlings	83	15		
	Kala khambas	63	.....	4,590	1,07,553
Sunderbuns Division	Soondri timber	332	3,229	332	3,229
	Total ...	.....	.....	29,203	2,27,722

		Mds.	Mds.
Firewood	Removed by purchasers ...	13,425	.....
Firewood	Lost and used by the department.	150	13,575
	Balance in hand at close of the year.	1,786	1,786
	Total ...	.....	15,361
		No.	No.
Bamboos	Removed by purchasers ...	7,005	7,005
Bamboos	Balance in hand at close of the year.	67,715	67,715
	Total ...	.....	74,720

Annual Form No. 57.

FOREST DEPARTMENT, BENGAL.

Statement showing the amount realized on account of the different classes of timber and other produce sold during 1876-77.

Division.	Description of timber, &c.	Number of pieces, &c., sold.	Cubic contents.	Amount realized and due on account of sales.	Average amount per log, &c.	Average cubical contents of log.	Average amount per cubic foot.	Remarks.
				Rs. A. P.	Rs. A. P.		A. P.	
Darjeeling ...	Toon, sal, sissu, kala khambas sleepers, &c.	17,297	46,099	31,995 11 11	1 13 7	2·665	11 1	
Julpigoree ...	Ditto ditto ...	564	13,740	10,956 12 6	19 6 10	24·362	12 9	
Sunderbuns ...	Soondri timber	4	34	6 7 6	1 9 10	8·5	3 0	
Darjeeling ...	Firewood	Mds. 13,425	.....	1,591 9 6	11 13 8	.....	.....	per 100 maunds.
Palamow .	Bamboos	No. 7,005	.....	138 4 9	1 15 7	.....	.....	per 100 bamboos.
Arrears transactions of Assam .	.....	.....	.....	226 12 6	.....	.....	... .	
	Total ...	.....	.....	44,915 10 8	.....	.....	.....	

Deduct—
Amount due but not realised during the year 646 3 7

Balance ... 44,269 7 1

Add—
Amount realized on account of former years ... ...

Total shown as revenue on account of sales under budget head I ... 44,269 7 1

Annual Form No. 58.

FOREST DEPARTMENT, BENGAL.

Statement showing the Amount expended on the different classes of Timber and other Produce brought to Depôt during 1876-77.

Division or Depot.	Particulars of timber, &c.	Number of— Pieces.	Number of— Cubic contents.	Expenditure. Timber expenses under AI.	Expenditure. Quota of all other expenditure chargeable against timber, &c.	Expenditure. Total amount chargeable against timber, &c.	Average. Amount per piece.	Average. Cubic contents per piece.	Average. Amount per cubic foot.	Remarks.
				Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.		Rs. A. P.	
Direction	*Nil*	.....	.....	... ..	6,710 8 3	6,710 8 3	...	.....	... .	No timber operations.
Darjeeling Division ...	Sál, sissu, &c. ..	12,908	41,589	14,336 15 11	6,506 13 6	20,843 15 5	1 9 10	3·222	0 8 0	
Julpigoree ditto ...	Sál, sissu, &c. ..	4,435	104,245	23,825 1 3	6,974 11 10	30,799 13 1	6 15 1	23·505	0 4 9	
Sunderbuns ditto ..	Soondri timber	381	3,520	104 13 11	10,557 0 2	10,661 14 1	27 15 8	9·238	3 0 6	
	Total ...	17,724	149,354	38,266 15 1	24,038 9 6	62,305 8 7				
Darjeeling ditto	Firewood ...	Mds. 9,325	.....	322 5 11	.....	322 5 11	3 7 3	.....	.....	Per 100 maunds.
Palamow ditto ..	Bamboos ...	Pieces. 74,720	.....	477 0 6	1,782 6 2	2,259 6 8	3 0 4	.....	.... .	Per 100 bamboos.
Chittagong ditto ...	*Nil*	.....	.....	.....	4,786 15 1	4,786 15 1	.....	.....	.....	
Arrear transactions ...	*Nil*	.....	.....	.....	97 10 0	97 10 0	.....	.....	.....	No timber operations.
Payments by civil officers.	*Nil*	.....	.....	.....	55 14 10	55 14 10	... .	.....	...	
	Total ..	.....	.....	.....	4,940 7 11	4,940 7 11				
	Grand Total ..	.....	149,354	39,066 5 6	37,471 15 10	76,538 5 4				

ANNUAL FORM No. 60.

FOREST DEPARTMENT, BENGAL.

Abstract showing the value of Timber and of Live and Dead Stock for the year 1876-77.

Description of Timber and other Stock.	On hand at commencement of the year.		On hand at the close of the year.		Difference.	
	Number.	Value.	Number.	Value.	In favour of the year.	Against the year.
Darjeeling Division.		Rs. A. P.		Rs. A. P.		
Toon logs	65	40 0 0	.....	.....		
Sál "	213	6,571 12 0	380	13,412 0 0		
Sissu "	1,099	1,703 4 0	495	797 4 0		
Khair "	2	2 0 0	2	2 0 0		
Scantlings	326	392 11 3	67	161 0 0		
Sál sleepers, broad gauge	4,889	5,404 8 0	37	18 8 0		
Ditto, narrow "	1,607	2,016 1 4	2,555	4,471 4 0		
Other ditto " "	505	128 4 0	495	123 12 0		
Kala khambas	699	1,742 10 0	356	800 0 0		
Firewood, maunds	6,036	716 4 2	1,786	199 3 7		
Elephants...	4	6,000 0 0	4	6,000 0 0		
Bullocks	2	60 0 0	2	60 0 0		
Total ...		24,775 6 9		26,044 15 7	1,269 8 10	.....
Julpigoree Division.						
Toon logs	3	15 0 0	1	5 0 0		
Sál "	1,665	35,760 12 0	4,165	1,03,681 12 0		
Sissu "	1	21 0 0	206	2,879 2 0		
Khair "	.....	.....	8	77 4 0		
Other "	1	2 0 0	18	83 4 0		
Scantlings	83	35 0 0	83	35 0 0		
Sleepers, broad gauge	51	51 0 0	51	51 0 0		
Kala khambas	4	12 0 0	63	303 0 0		
Elephants	7	16,000 0 0	7	16,000 0 0		
Buffaloes	2	40 0 0	2	40 0 0		
Total ...		51,936 12 0		1,23,155 6 0	71,218 10 0	.....
Palamow Division.						
Bamboos	.....	.....	67,715	402 14 2		
Elephants	1	1,500 0 0	1	1,500 0 0		
Total ...		1,500 0 0		1,902 4 2	402 14 2	.....
Sunderbuns Division.						
Soondri logs...	266	518 4 0	332	605 6 6		
Boats	7	129 2 6	30	3,906 15 8		
Total ...		647 6 6		4,512 6 2	3,864 15 8	.....
Chittagong Division.						
Elephants	2	3,000 0 0	2	3,000 0 0		
Total ...		3,000 0 0		3,000 0 0		
GRAND TOTAL ...		81,859 9 3		1,58,615 9 11	76,756 0 8	.....

E. F. M.—Regr. No. 12795—600—5-10-77.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN

BENGAL

FOR

1877-78,

By W. SCHLICH, Esq., Ph. D.,
CONSERVATOR OF FORESTS:

WITH A REVIEW BY THE LIEUTENANT-GOVERNOR

AND

ORDERS BY THE GOVERNMENT OF INDIA.

1879.

CALCUTTA:
PRINTED BY THE SUPERINTENDENT OF GOVERNMENT PRINTING,
HASTINGS STREET.

No. 124F., dated Calcutta, the 1st February 1879.

From—The Secretary to the Government of India,

To—The Secretary to the Government of Bengal.

I am directed to acknowledge the receipt of Mr. Risley's endorsement No. 2532, dated the 21st October last, forwarding the Annual Report on Forest Administration in Bengal for 1877-78, together with a most interesting review by His Honour, which deals fully with all matters treated of in the report.

2. The area of reserved forests at the close of the year is given as 3,430 square miles, the only new additions made in 1876-77 being 12 square miles in Jalpaiguri and 28 in the Palamow division. It is satisfactory to find that the demarcation of the reserves has progressed favourably during the year, and that only 486 square miles out of the area recorded as reserved forests on the 31st March last remained to be demarcated.

3. For administrative purposes, these forests are arranged in eight divisions, each under a controlling officer. The Conservator lays stress upon the necessity of dividing the forests into small manageable charges, and urges that the number of divisions should be raised from eight to ten, and that the staff of superior officers be increased accordingly; but without definite proposals on the part of the Local Government, no action can be taken upon this suggestion.

4. Fire protection has not been very successful during the year under review. Owing to exceptionally dry weather and the prevalence of storms of wind during the fire season, about one-third of the total area attempted to be protected was burnt over. The Governor General in Council is glad to learn from paragraph 28 of the Conservator's report that the planting of the fire-belt of sâl trees on the boundary of the Buxa reserve is being proceeded with, and trusts that no trouble will be spared in arranging for fire protection of this as well as of the other forests.

5. The arrangement of the statement recorded in paragraph 38 of the report, shewing the distribution of receipts and charges under the three great heads of Departmental timber operations, Other revenue and formation, Protection and improvement of the forests, is not yet satisfactory, and the Conservator's attention may be invited to paragraph 9 of the orders of the Government of India on the Report for 1876-77 dated the 7th January 1878. In the statement as recorded in the report, the quota of pay of establishments charged to I—"Departmental timber operations," includes a portion of the pay of establishments of the Palamow, Sundarbans, and Chittagong divisions, where no such operations were conducted. In future reports, the figures of this statement should be based upon an analysis in detail of the annual accounts.

6. Paragraph 8 of the orders of the Government of India on the Forest Report of 1876-77 requested that in future a return might be given shewing the receipts and charges in both reserved and unreserved (protected) forests separately. No such statement is entered in the present report; but assuming, as was done in reviewing the figures of 1876-77, that the receipts and charges of the Chittagong division are on account of protected, and those of all other divisions on account of reserved, forests, the results stand as follows:—

	Reserves.	Protected forests.	Total.
	Rs	Rs.	Rs.
Receipts	3,74,985	51,243	4,26,228
Charges	2,34,079	27,132	2,61,211
Surplus ...	1,40,906	24,111	1,65,017

In these figures two corrections have been introduced, which it is understood are required, *viz.*, a deduction for revenue of Rs. 6,136, being the amount paid to the Rajah of Hill Tipperah on account of his share of the collections at the Fenny station, and an addition to the expenditure of Rs. 93 on account of medicines procured from the Medical Department for the Buxa division.

The gross receipts calculated upon 3,430 square miles of reserved forests amount to Rs. 109 per square mile or 2¾ annas per acre.

7. In the orders on the Report for 1876-77, paragraph 10, a statement was given shewing the quantity of timber brought to depôt, the outlay on account of it, the quantity sold, and amount realized during the past three years, and it was asked that similar statements might be recorded in each annual report, in order clearly to shew the average amount expended and realized on account of timber brought to depôt and sold on Government account during a series of years. This does not seem to have been done.

Continuing the statement given in the orders on the Report for 1876-77, for the past year, we have—

Year.	No. of Statement.	Brought to Depôt.		No. of Statement.	Sold.	
		Cubic feet.	Amount paid.		Cubic feet.	Amount realized.
			Rs.			Rs.
1874-75	27	58,060	21,748	26	65,917	45,530
1875-76	27	77,297	42,874	26	55,900	49,302
1876-77	58	149,354	76,538	57	59,873	44,915
1877-78	paras. 34, 38	106,577	1,24,366	paras. 34, 38	101,035	1,70,621
Total ...	...	391,288	2,65,526	...	282,725	3,10,368

8. If these figures are correct, the outlay amounted to Rs. 67 per 100 cubic feet, and the realizations to Rs. 108 per 100 cubic feet. In paragraph 35 of the Conservator's report, a statement is given shewing the average surplus per 100 maunds of firewood and charcoal and per cubic foot of timber during the last four years. From this statement it appears that the surplus has given nearly Rs. 8 per 100 maunds of firewood or charcoal and 7 annas per cubic foot of timber.

9. The Conservator's able account of the history and prospects of the different forest divisions has been read with interest, and will doubtless be very valuable. It gives a good idea of the progress of forest conservancy in Bengal since the present Conservator, Dr. W. Schlich, took charge. The Governor General in Council readily endorses the remarks of His Honour the Lieutenant-Governor, regarding the progress that forest conservancy in Bengal has made under Dr. Schlich's able and conscientious supervision.

REVENUE DEPARTMENT.

FORESTS.

DARJEELING, THE 21ST OCTOBER 1878.

RESOLUTION.

READ—

The Progress Report of Forest Administration in Bengal for the year 1877-78.

The report is again late in submission, owing, it is explained, to the adjustments in the annual accounts rendered necessary by orders of the Comptroller-General. It is, however, both full and interesting, Dr. Schlich having endeavoured, in view of his approaching transfer from Bengal, to place on record all the information regarding the reserves and their treatment that could be of use to his successor and to Government. The Lieutenant-Governor takes this opportunity of expressing his regret at the prospect of losing Dr. Schlich's services, and his high appreciation of the progress that forest conservancy has made in Bengal under that officer's able and conscientious supervision.

2. The only new forest area inspected during the year was that of the Koderma reserve, in the north of Hazareebagh, which was notified as a reserve forest in July 1876, without having been subjected to detailed examination. The result of the Conservator's inspection in February 1878 went to show that the forest is in a very poor and reduced condition, and that it is desirable to release from the reserved area some 24 square miles of country in order to provide a supply of wood for the neighbouring villagers, who could then be excluded without hardship from the remaining area.

3. Only 40 square miles of forest were added to the Government reserves during the year, bringing the total area up to 3,430 square miles. It is in contemplation, however, to take up an extensive tract in the Chittagong Hills, and to increase the area considerably in Darjeeling and Julpigoree; while, on the other hand, the forests in the Damin-i-Koh have been made over to the care of the local officers. At the close of 1878-79 it is expected that there will be 4,406 square miles of forest under this Government, of which 823 square miles lie in the lower Himalayas and the adjoining Terai and Dooars, and the rest in Chittagong, the Sunderbuns, Chota Nagpore, and Shahabad. The open Sunderbun forests, which are Government waste, are also to be declared a protected forest and to be managed by the Forest Department. In view of this extension of forest conservancy in Bengal, the propriety of dividing the province into two Conservators' charges has been mooted and is advocated by Dr. Schlich. The Lieutenant-Governor would prefer to have one Conservator only, who should be at the head-quarters of Government, and to strengthen the staff of trained Deputy Conservators, but it may not be possible for the Government of India to arrange this.

4. The reserved forests as they now stand may be thus classified :—

		Square miles.
1.	Sâl forest, with savannah, mixed forest, and lower hill forest containing sâl	1,090½
2.	Khair and sissu forest	113½
3.	Upper hill forest	75
4.	Sundri forest	1,581
5.	Chittagong mixed forest	570
	Total ...	3,430

5. Demarcation was extended over 323 square miles during the year, and there are now only eight square miles in Darjeeling, 18 in Julpigoree, and 460 in Chota Nagpore remaining to be demarcated out of the 3,430 miles already taken up.

6. The policy of the Conservator has been to divide the forest charges into small manageable areas such as one executive officer can properly administer. He considers that there should be ten such charges in Bengal, to manage which two Conservators and 13 other superior officers are required. The present sanctioned scale gives nine officers of the rank of Assistant Conservator and upwards, and (say) two Sub-Assistant Conservators. Even if there be only one Conservator allowed, the Lieutenant-Governor concurs with Dr. Schlich in thinking that some increase of the forest staff will very soon be required.

7. For subordinate establishments of all kinds a lump sum of Rs. 3,500 per mensem is at present sanctioned, but this must be raised to Rs. 4,000 to enable the department to manage the areas now being added.

8. It is satisfactory to observe that there were during the year only 112 prosecutions for breach of forest rules as against 233 in 1876-77. The Conservator reports that the decrease is owing to forest protection having become more effective, and he considers that the few attempts made to violate the rules prove that forest conservancy does not press too hardly upon the people. The great majority of the cases occur in the Sunderbuns, where, however, conviction is difficult owing to the immense area under forest and the existence of private grants in the neighbourhood of the Government reserves. In 95 Sunderbun cases, conviction followed in only 26. In 17 cases instituted elsewhere, conviction followed in 11.

9. The forest officers cut during the year 55½ miles of new fair-weather roads in Kurseong, Buxa and Chittagong, besides repairing 63 miles of old road in Buxa and Kurseong and clearing 250 miles of boundary paths. The Conservator again refers to the advisability of opening out the old Teesta Valley road. A resurvey of this route has already been ordered, and a good bridle-path will be constructed on general grounds.

10. During the year 111 acres were added to the plantations, making the total area 524 acres. The chief plantations are those of oak, chestnut, magnolia, and walnut (144 acres) in Darjeeling; of teak, toon, sâl, and sissu (406 acres) at Bamunpokri (in Kurseong) and Sitapahar (in Chittagong); and of sâl (36 acres) in Buxa. Systematic planting for the maintenance of the firewood supply of Darjeeling will now be undertaken, and 30 acres have already been planted in June and July 1878.

11. Dr. Schlich reproduces, in paragraph 29 of his report, a communication from Dr. King, Superintendent of Botanical Gardens, showing the result of the continued experiments carried on with certain economic plants and trees. There can be no doubt that neither the encalypti nor the carob tree are at all likely to thrive in the Gangetic delta. The prospects of Para and Ceara rubber plants are more promising. But neither the baobab nor the bamboo can be cultivated so as to yield a cheap paper stock. Some information should have been given by Dr. King as to the character of the plants grown from the seed supplied by Dr. Forbes Watson in October 1876. Though the seed was received without name, it is presumed that the plants, which have garminated to the number of 2,354, can be identified. The seedlings of *Prosopis pallida* would seem to be fairly thriving.

12. The year under review was particularly unfortunate as regards fires owing to continued dry and windy weather. Arrangements were made to protect 122,728 acres, but failed as regards 43,894 acres. The sum spent on fire protection during the season was Rs. 1,983. This is a most important part of the duty of the Forest Department, and it will be better to spend even more money if it will secure success in keeping out fires.

13. The financial results of the working of the Forest Department in Bengal for the last seven years are given in the following table—

Years.	Receipts.	Charges.	Surplus.	Area of reserved forests.
	Rs.	Rs.	Rs.	Square miles.
1871-72	87,260	67,506	19,754	106
1872-73	1,16,690	62,554	54,136	106
1873-74	1,23,732	81,068	42,664	120
1874-75	1,85,914	98,654	87,260	1,467
1875-76	1,98,374	1,39,086	59,188	2,585
1876-77	2,22,401	2,11,689	10,712	3,390
1877-78	4,32,303	2,61,112	1,71,191	3,480

Upon this Dr. Schlich remarks—"These figures show that the revenue has been nearly doubled during the year under review, and the cash surplus has risen from Rs. 10,712 to Rs: 1,71,251. The value of stock on hand has fallen by Rs. 14,913: hence the value of the year's transactions amounts to Rs. 1,56,338, as compared with Rs. 87,468 in 1876-77, so that a great improvement has taken place in every respect. The Conservator feels confident that the surplus in future years will be still greater, and that the Government forest estates in Bengal may now be said to have become a source of permanent and increasing returns to the State."

14. Arranging the receipts and charges of 1877-78 according to the main budget heads, they show as follow:—

Receipts.		Rs.	*Charges.*	Rs.
Departmental timber operations.	From wood brought to depôt by departmental agency; from confiscated, drift and waif wood	1,70,621	Cost of timber operations by the department and in recovering drift; half the total cost of departmental cattle, plant and tools, and one-quarter the total cost of the establishment	1,94,366
Other revenue .	From wood removed by private purchasers, &c; from minor produce and miscellaneous	2,61,742	Cost in connection with removal by private purchasers; collection of dues on minor produce; miscellaneous charges; one-quarter of total cost of cattle, plant and tools, and half the cost of establishment	74,068
Formation, protection, and improvement of forests ...	.....	.....	Cost of forest organization; treatment and creation of forests; works for development of forests; one-quarter of total cost of cattle, plant, and tools, and one-quarter cost of establishment ...	62,678
	Total ...	4,32,363	Total ...	2,61,112

Upon these results the Conservator remarks—

"From these figures it follows—

"1*st.*—That the departmental timber operations have yielded a surplus of Rs. 46,255, equal to 27 per cent. of the receipts on account of timber sold from depôts, although the expenditure charged against these operations includes a portion of the pay of establishments, &c., of the Palamow, Sunderbuns, and Chittagong divisions, where no departmental timber operations have been conducted.

"2*nd.*—In spite of our having spent Rs. 62,678 on the formation, protection, and improvement of the forests, we have still a cash surplus of Rs. 1,71,251, which is equal to 40 per cent. of the gross receipts."

The Lieutenant-Governor considers that forest conservancy in Bengal may now be reckoned an assured success from a financial point of view, and, as it is elsewhere stated that with proper management the Government reserves will suffice to meet the wants of by far the greater portion of the province, there is every reason to be satisfied with both the present position and future prospects of the department.

15. The Lieutenant-Governor regrets to note that so many officers of the department, including the Conservator himself, suffered in health during the year, and that one very promising officer, Mr. Bonham Carter, died of dysentery contracted upon duty.

16. In the foregoing paragraphs the working of the department has been treated as a whole. The leading facts in connection with each of the forest divisions may now be briefly noticed.

I. The Darjeeling Division.—The division known in former years by this name has now been sub-divided into three forest charges, styled the Darjeeling, Teesta, and Kurseong divisions. In the division of *Darjeeling* proper there are at present 26 square miles of gazetted reserves, but the area will by the end of the current year be 38 square miles, stocked with oaks, chestnuts, magnolias, laurels, maples, and a great variety of other trees. The maple is assuming a very important place in the forests near Darjeeling, yielding as it does a very fair firewood, and being raised with the least amount of trouble. It will in future form the main standby in reproductive measures, the more valuable trees being planted here and there among the maple woods. There are now five acres under Spanish chestnut at Rungaroon, but the results are not satisfactory, and it is not intended to send more seed of this kind to Bengal.

17. The large and growing demand for firewood and charcoal for the cantonment and station of Darjeeling, and the tea gardens near, made it necessary to bring the working of the forests entirely under departmental control, and to exclude private purchasers from the forests entirely. The Conservator is thus able to clear and thin the blocks systematically, and to plant them up again. During the year 1,67,173 maunds of firewood and 5,872 maunds of charcoal were sold at an average cost of Rs. 24-2-3 per 100 maunds, giving a profit of about Rs. 8 per 100 maunds.

18. The receipts of this division were altogether Rs. 49,790, and the charges Rs. 36,692; the result being a surplus of Rs. 13,098.

19. *II. The Teesta Division.*—This division has not yet been fully formed. A large area in the Daling sub-division is about to be added to it, which will raise the area from the present figure of 61 square miles to 255 square miles. It will then be sub divided into two charges—(1) the Teesta division, with 132 square miles, and (2) the Daling division, with 154 square miles. These areas contain all the various classes of forest found in the Darjeeling district at all elevations, and the lower ranges at any rate are certain to prove very valuable. This is not, however, as yet a paying division, its receipts being only Rs. 1,946, against an outlay of Rs. 10,188. But it is expected that the demand for timber, firewood and charcoal, likely to arise from the opening out of tea gardens in the Daling sub-division, will very soon bring the balance to the right side of the account.

20. *III. The Kurseong Division.*—This division comprises the reserves lying on the outer hills from Kurseong downwards, and in the adjoining Terai. The total area, after adjustments with the Teesta division, and including certain blocks purchased from private parties since the close of the year, will amount to 75 square miles. There is no oak or rhododendron in this division, but with that exception most of the characteristic trees of the district are found. In the Terai, sâl is the prevailing wood, and there is also a good deal of khair and sissu on the river banks. The management of this division is peculiarly difficult, owing to the unhealthiness of the Terai and lower hills. It includes the Bamunpokri plantation already noticed, which now covers an area of 215 acres. In this originally only teak was planted, which so far was not done badly, but toon, sâl, and sissu have since been added. A few plants of mahogany were tried, but only three are now alive. The total outlay on planting up to date has been Rs. 28,118, and by 1880 it will probably amount to Rs. 35,000, after which the plantation will, it is hoped, be self-supporting. The expenditure will have been about Rs. 160 per acre, and, considering that the locality is one where the rank grasses have to be cleared five or six times each season, the Conservator thinks it not excessive, especially as every stick from the plantation will command a ready sale. A small plantation of India-rubber trees is also thriving. Fortunately, although the division suffered severely from fires, Bamunpokri escaped; but the average cost of this protection for the last two years has been 12 annas 6 pie per acre.

21. This division has supplied during the year large quantities of timber for the Northern Bengal State Railway and for the construction of bridges on the Ganges-Darjeeling road. Indeed, the Conservator is of opinion that these forests have now been overworked, and that the cutting of sâl should, if possible, be reduced for a year or two, until the extra cuttings of 1877-78 have been made up. The receipts of the division were Rs. 98,451, and the charges Rs. 45,930; showing a net surplus of Rs. 52,520, or Rs. 543 per square mile of the area actually worked.

22. *IV. The Julpigoree Division.*—This division consists of the forests between the rivers Teesta and Tursa in the Western Dooars. The area will at the close of this year amount to 169 square miles. It stood at 140 square miles on the 1st April 1877, and 12 miles were added in 1877-78. The forests suffered severely from fires during the year, no less than 5,900 acres having been burnt. These forests were much exhausted when taken up, and it was intended not to work them for large timber for at least 25 or 30 years. But the demand for sleepers for the Northern Bengal State Railway compelled the cutting of sâl both in 1876-77 and 1877-78. The receipts of the division were Rs. 12,580, and the charges Rs. 16,546. It is hoped to make it pay its expenses

in future by the sale of firewood, charcoal, &c., to the tea gardens in the neighbourhood.

23. *V. The Buxa Division.*—The Buxa reserves cover an area of 250 square miles between the Tursa and Sunkos rivers in the Western Dooars. In this division an attempt is being made to protect the reserves from fire by planting a thick belt of sâl, 100 feet broad, along the boundary. Good progress is being made with this, but meantime the injury done by fires is very great, no less than 36,440 acres having been burnt in the year out of an area of 103,900 acres sought to be protected. The Conservator observes, however, that the people in the neighbourhood of the forests are beginning to understand better the necessity of caution in setting fire to grass and to co-operate better with the department. He is sanguine of success eventually.

24. This division also has felt the demand for sleepers and timber for the Northern Bengal State Railway, and 2,776 green trees and 1,932 dry trees and pieces were cut during the year. The actual receipts were, however, only Rs. 37,153, against charges amounting to Rs. 50,658. This deficit is, however, owing to the fact that Rs. 12,095 were disbursed during the year on account of former years, and that a large stock of sleepers cut and carted during the year were only made over and paid for in April. The division is now really a *surplus* division.

25. *VI. The Palamow Division.*—The blocks of forest to be reserved in this division were re-arranged during the year so as to secure greater compactness. It now comprises 216 square miles—179 in Palamow and 37 in Shahabad. There are difficulties in connection with the boundaries of the Rhotas block in Shahabad, which the revenue authorities are now investigating. Nothing has yet been done in this division beyond demarcation. The forests need rest, and only minor produce and a small quantity of timber to meet local requirements can be sold. The receipts of the year were Rs. 1,006, and the charges Rs. 16,088.

26. *VII. The Sunderbuns Division.*—The area of the reserves is here unchanged, amounting to 1,581 square miles. The area outside the reserves, used chiefly for fuel forest, is to be shortly placed under departmental management as a protected forest, and the establishment will have to be reorganised accordingly. But, meantime, great progress has been made in checking the removal of wood without payment. Thus, in 1876-77, the department had cognizance of the removal of only 43,18,157 maunds, but in 1877-78 it collected dues on 91,03,250 maunds. The receipts were Rs. 1,73,999, and the charges only Rs. 33,453; giving a surplus of Rs. 1,40,546, or Rs. 89 per square mile. The actual charges made are extremely low—one anna per maund for sundri timber, and one pice per maund for any other timber and firewood.

27. *VIII. The Chittagong Division.*—The present area of the reserves in Chittagong is 570 square miles, but it is in contemplation to increase the reserves to 1,350 square miles; and it has been decided in any case to give over all the rest of the district forests to the management of the Deputy Commissioner, reducing the rate of river tolls on produce from these open tracts to a small *ad valorem* fee. The Sitapahar plantation in this division has now 185 acres under teak. With this it is proposed to mix toon, and it is intended to plant jarul in the lower parts of the reserve where teak does not flourish. The reserves have not yet been worked for timber, and the income from river tolls during the year showed a still further falling off as compared with 1876-77, the receipts being Rs. 57,378 and charges Rs. 27,132; giving a surplus of Rs. 30,246, against Rs. 39,445 in the previous year, Rs. 64,953 in 1875-76, and Rs. 98,608 in 1874-75. The people have been suffering from bad seasons, and there is an import of cheaper timber from Arrakan.

28. *IX. Koderma and Saranda Pir.*—The Koderma reserve in Hazareebagh is to be reduced to 36 square miles. Nothing has yet been done in it or in the Saranda Pir reserve of 400 square miles in Singbhoom.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

Secretary to the Government of Bengal.

No. 2532.

COPY, with 400 copies of the Report, submitted to the Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce, for information.

By order of the Lieutenant-Governor of Bengal,

H. H. RISLEY,

Under-Secretary to the Govt. of Bengal.

CALCUTTA,
The 21st October 1878.

C. H. L.—Reg. No. 6066—28-10-78.

No. 77AR—G, dated Darjeeling, the 5th September 1878.

From—Dr. W. SCHLICH, Conservator of Forests, Bengal,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honor to submit herewith the annual administration report of this department for the year 1877-78.

2. As this will probably be the last forest report of Bengal which I shall write for the present, I thought it advisable to give full details of the areas of the reserves. The collection of these data has taken a good deal of time, and I was therefore anxious to put them in a precise form before Government and my successor.

3. Forms 57, 58, and 59, "suggested" in the Forest Code, have not been given. The information indicated in the former two has been entered in the body of the report, in accordance with the permission granted in the Government of India's circular No. 10F, dated 23rd January 1878. As regards form 59, I fear it will be very difficult to obtain the correct data necessary if the return is to be of any value. As a rule, only the average expenditure per cubic foot incurred on timber brought to depôt is known, whereas the timber generally selected by the Public Works Department is the pick of the whole, hence it would lead to false conclusions, comparing the average expenditure with the price obtained from the Public Works Department.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN BENGAL

For the Year 1877-78.

By W. SCHLICH, Ph.D.,

Conservator of Forests, Bengal.

SECTION I—SUMMARY OF ADMINISTRATION DURING THE YEAR.

1.—Inspection of Forests.

This chapter refers to the inspection and examination of new forest tracts, with the view of bringing suitable areas under proper management, either as *reserves* or *protected forests*, as they are now called. It is evident that the work of inspection will become less every year, and disappear altogether as soon as we have inspected all areas available for forest purposes.

2. During the year under review the Koderma forest, situated in the northern part of the Hazareebagh district, has been inspected by the Conservator. By a notification dated 10th July 1876, the Koderma jungle, comprising an area of about 60 square miles, had been notified as a reserved forest under Act VII of 1865. This was done before an officer had been deputed to inspect the area. The Conservator, on visiting the reserve in February 1878, found that the area consisted of undulating ground intersected by numerous water-courses, which join partly the Tileya and partly the Gangee Nuddy, both of which run into the Gya district. The reserve, it will be seen, is situated on the northern slope of the Hazareebagh plateau, which here runs out into the Gya district, the descent beginning close to the village of Koderma. The rock is gneiss, and the soil is of a sandy description mixed with pebbles and red clay.

3. The forest consists of a great variety of trees, amongst which the following deserve special mention : —

Sal—Shorea robusta,
Salai—Boswellia thurifera,
Piar—Buchanania latifolia,
Thein—Diospyros Melonoxylon,
Thanta—Anogeissus latifolia,
Asan—Terminalia tomentosa,
Mahua—Bassia latifolia,
Khair—Acacia Catechu,
Sida—Lagerstrœmia parviflora,

a number of figs, and a fair amount of bamboos.

4. Owing to unrestricted cuttings the forest is now in a very reduced condition. From inquiries made on the spot, there appeared to be 19 villages, with 204 houses inside the reserve, besides a number of villages, containing some 400 houses, near the south boundary, the inhabitants of which have been in the habit of supplying themselves with forest produce from the reserved area. It would have been impossible to close the forest against these people, but as there are no other reserves in the Hazareebagh district it was essential to secure as much area as possible, in order to provide some timber of large dimensions for future requirements. Under these circumstances, the Conservator proposed that the area should be reduced from 60 to 36 square miles, in such a manner as to exclude 12 villages with 168 houses, leaving only 7 villages with 36 houses inside, the people living in the latter 7 villages to receive fair compensation, under the condition that they move outside the reserve. These proposals received the sanction of Government, and they are to be carried into effect during the coming working season.

2.—Area and Boundaries of Reserves.

5. On the 1st April 1877 the area of reserves amounted to 3,390 square miles. During the year under review 40 square miles were added, bringing the total area up to 3,430 square miles. Besides, it is intended to add about 1,040 square miles, orders having been issued regarding most of the areas. On the other hand, the Koderma reserve will be reduced by 24 square miles, and the Damin-i-koh reserve will not be retained as such, so that the total area of reserves will be about 4,406 square miles at the end of the present official year. The subjoined table shows the distribution :—

Name of Division.	Area in square miles						Himalayan and Sub-Himalayan forests.	Lower Bengal and Chota Nagpore forests.
	At the beginning of 1877-78.	Added during the year.	Total at the end of the year 1877-78.	Expected.		Total.		
				Increase.	Decrease.			
Darjeeling	26	.....	26	12	.....	38	38	.....
Teesta	57	.....	57	198	.....	255	255	....
Kurseong	78	.....	78	28	.....	106	106	.....
Julpigoree	140	12	152	17	.....	169	196	.....
Buxa	250	.....	250	5	.....	255	255	..
Palamow	188	28	216	.....	.....	216	.....	216
Sunderbuns	1,581	.....	1,581	.....	.....	1,581	.....	1,581
Chittagong	570	.....	570	780	.....	1,350	.....	1,350
Singbhoom	400	.....	400	.....	.....	400	.....	400
Hazareebagh	60	.....	60	.....	24	36	.....	36
Sonthal Pergunnahs	40	.....	40	.....	40	.....	.....	.....
Total ...	3,390	40	3,430	1,040	64	4,406	823	3,583

6. Of the new areas in Julpigoree, 5½ square miles are sâl forest and 6½ khair and sissu forest. The additional 28 square miles in Palamow are sâl forest with mixed forest: hence the totals of the different kinds of forests stand now thus—

	Square miles.
1. Sâl forest, with Savannah, mixed forest, and lower hill forest, containing sâl	1,090½
2. Khair and Sissu forest	113½
3. Upper hill forest	75
4. Sundri forest	1,581
5. Chittagong mixed forest	570
Total ...	3,430

7. From the statements given in paragraph 5 it will be observed that we shall in a few months have 4,406 square miles under our management, of which 823 square miles are situated on the lower Himalayas and the adjoining Terai and Dooars, that is to say, along the northern edge of Bengal, and the remaining 3,583 square miles in Chittagong, the Sunderbuns, Chota Nagpore, and Shahabad, that is to say, along the southern edge of the Lieutenant-Governorship of Bengal. As already indicated in last year's report, the traffic in forest produce from the Himalayan forests tends southwards, and that from the Lower Bengal forests northwards, so that by far the greater portion of Bengal can be supplied with timber and other produce from the reserves.

8. It has been decided during the year to declare the open Sunderbuns in the 24-Pergunnahs and Jessore a protected forest under Chapter IV of the new Forest Act, and to make its management over to the Forest Department, until the area is required for extension of cultivation.

9. Under the circumstances, it will be very difficult in future for one Conservator to do justice to the work extending over so large and scattered an area. Hence the advisability of appointing a second Conservator to Bengal is now under consideration. Should the proposal be sanctioned, the Conservator would divide the areas in the following manner:—

I.—Northern Charge.

Comprising—

(1) The Darjeeling division.
(2) The Teesta ditto.
(3) Daling ditto (proposed, but not yet established).
(4) Kurseong ditto.
(5) Julpigoree division.
(6) Buxa ,,

II.—Southern Charge.

(1) Sunderbuns division.
(2) Chittagong ,,
(3) Palamow ,,
(4) Singbhoom and Hazareebagh division.
(5) Behar, in case forest conservancy should be attempted in connection with the prevention of famines.

It will be shown further on that the financial results justify now the proposed division into two Conservatorships.

10. *Demarcation.*—The following table exhibits the progress made in demarcation during the year:—

Name of Division.	Area demarcated in square miles			Balance remaining to be demarcated	Total area of reserves.	Remarks.
	At the beginning of 1877-78.	During 1877-78.	Total of 1877-78.			
Darjeeling	76	77	153	8	26	A few lines have to be verified by a professional survey party.
Teesta					57	
Kurseong					78	
Julpigoree	67	67	134	18	152	
Buxa	250	.....	250	.....	250	
Palamow	.....	179	179	37	216	
Sunderbuns	1,581	.....	1,581	.....	1,581	
Chittagong	570	.....	570	.....	570	
Singbhoom	.....	.....	.....	400	400	
Hazareebagh	.....	.....	.....	60	60	
Sonthal Pergunnahs	40	.....	40	...	40	
Total ...	2,584	323	2,907	523	3,430	

As already mentioned in last year's report, the boundaries of the Rohtas forests, Palamow forest division, had been demarcated, but they are disputed by the surrounding population. The area to be demarcated has thus been reduced to 8 square miles in the Darjeeling district, 18 in Julpigoree, and 460 in Chota Nagpore.

11. *The boundary records* have been proceeded with during the year, but they are not yet complete. Now that the demarcation approaches completion, it will be possible to proceed at a faster rate with the record of the demarcated boundaries, whenever necessary.

3.—Protection and Improvement.

12. Guided by the principle that small charges, which can be thoroughly controlled, are essential to progress in the protection and improvement of forests, we have during the year under review divided the former Darjeeling division into three, and the former Julpigoree division into two divisions. Thus we have now eight charges, the present and expected dimensions of which were given in paragraph 5 of this report. As, however, the Teesta

division will be too large for one charge, it is proposed to divide it into two as soon as the demarcation has been completed. One additional charge will be formed out of the Singbhoom and Hazareebagh reserves, thus making 10 divisions, besides any further charge that may hereafter be established in Behar or elsewhere.

13. The superior establishment consisted on the 1st April 1878 of—

	1	Conservator.
	2	Deputy Conservators.
	6	Assistant Conservators (one officiating).
	1	Sub-Assistant Conservator.
Total ...	10	Officers.

One Assistant Conservator is now on leave, and one Deputy Conservator, one Assistant Conservator, and one Sub-Assistant Conservator, have joined since the close of year, making a total of 14 officers, of whom 13 are on duty. We shall now require, owing to the increase of reserves and the formation of the protected forest in the Sunderbuns, the following officers, provided the proposed second Conservator is sanctioned:—

Northern Charge.—One Conservator and seven other officers.

Southern Charge.—One Conservator and six other officers, or a total of 15 officers, which is one officer for every 294 square miles of reserves, irrespective of protected forests.

The present sanctioned scale comprises only 9 officers of the rank of Assistant Conservator and upwards, and, say, two Sub-Assistant Conservators, so that soon formal proposals for four additional officers will have to be submitted.

14. For *Subordinate Establishments* a lump sum of Rs. 3,500 per mensem is formally sanctioned, but as that amount was not sufficient, an application for a monthly allowance of Rs 4,000 during the present official year only has been made, which, the Conservator hopes, will be sanctioned. As soon as the expected increase of area has actually been gazetted, a detailed scale of subordinate establishment will have to be drawn up.

15. On the 1st April 1878 we entertained the following forest and depôt establishment:—

Rangers	5
Foresters	53
Watchers	137
Total forest staff ...	195

and an office establishment of—

Clerks	16
Peons	24
Total office staff ...	40
Grand total of subordinate staff ...	235 officials,

involving a monthly expenditure of Rs. 3,704. Before the close of the present year this sum will have risen to at least Rs. 4,000, owing to the additional areas already taken over.

16. The staff of rangers and foresters required during the future may be given as follows:—

	Rangers	Foresters.	Total
Darjeeling division	3	3	6
Teesta „	2	5	7
Kurseong „	2	4	6
Julpigoree „	1	4	5
Buxa „	2	7	9
Palamow „	1	4	5
Sunderbuns „	5	25	30
Chittagong „ (estimated) ...	3	3	6
Singbhoom and Hazareebagh division (estimated)	1	5	6
Total ...	20	60	80

It is impossible to say at this moment how many watchers may be required.

17. *Breaches of Forest Rules.*—In 1876-77 we instituted 233 cases, and in the year under review 112 cases. The protection of the forests has become very much more effective during the year: hence the falling off in the number of breaches of the rules shows that forest conservancy is being understood in Bengal, and that the measures taken for the protection of the forests do not press upon the people.

The cases are divided in the following manner amongst the divisions:—

			Prosecutions.	Convictions.
Darjeeling	division	... ...	2	2
Kurseong	ditto	... ...	3	3
Julpigoree	ditto	... ...	1	...
Buxa	ditto	... ...	4	4
Sunderbuns	ditto	... ...	95	26
Chittagong	ditto	... ...	7	2
		Total ...	112	37

It will be observed that in almost all cases instituted in the northern divisions convictions were obtained. In the Sunderbuns and Chittagong divisions, on the other hand, the percentage of convictions is small, owing to the difficulty of bringing the offence, though committed, home to the persons accused. In the Sunderbuns, in particular, the persons prosecuted generally manage to bring forward some evidence showing that they cut the timber in adjoining leased lots, thereby throwing doubts on the merits of the case, and thus causing the same to be dismissed. However, in the Sunderbuns particularly the number of cases has fallen from 220 instituted last year to 95 this year. If it is taken into consideration that the revenue of the division has been more than doubled during the year, it must follow that protection has greatly improved, and offences in the same degree decreased.

18. *Roads and bridges.*—We have cut duriug the year under review the following new fair weather roads:—

Kurseong division, total length about ...	16	miles.
Buxa „	5½	„ (completed after the 1st April 1878).
Chittagong „	34	miles.
Total ...	55½	„

In addition to the above, we have repaired old roads in the Kurseong and Buxa divisions over a length of about 63 miles, besides clearing boundary paths over a length of upwards of 250 miles.

19. It has been indicated in last year's report that the great desideratum in the Darjeeling district, as far as this department is concerned, is the opening out of the old Teesta valley road. We must hope that the interests of trade will soon join the field with ours to urge the necessity of the road in question.

20. *Buildings and boats.*—The following new buildings and boats have been constructed during the year:—

Kurseong Division.

(1) A small house for the clerk at Bamunpokri.
(2) A Forester's house at Bamunpokri.
(3) A new godown at Bamunpokri.

Palamow Division.

(4) A Forester's house at Hurnomand.
(5) Ditto ditto ditto at Kumandee.
(6) Ditto ditto ditto at Seemah.

Sunderbuns Division.

(7) A Revenue Station house at Upper Bohla.
(8) Ditto ditto ditto at Cobaduk.
(9) Ditto ditto ditto at Seepsha.

Chittagong Division.

(10) The Inspection Bungalow at Sitapahar has been completed during the year.

(11) A Forester's house at Sitapahar.

(12) A house for the Native Doctor at Sitapahar.

Last year we commenced the construction of 23 boats for the use of the Sunderbuns division. These have been completed during the year under review.

The elephant shed and the out-houses of the rest-house at Rajabathkawa were destroyed by fire during the year.

21. The following is *a list of buildings for which rent is paid by forest officers:—*

(1) The Julpigoree Forest Bungalow, cost Rs. 1,805, rent realized during the year Rs. 120.

(2) The Buxa Forest Bungalow, cost Rs. 1,000, rent realized during the year Rs. 84.

List of rest-houses which have cost more than Rs. 200 *each and for the occupation of which no rent is paid:—*

					Rs.
(1) The Rungbul Plantation Bungalow		cost	...	...	500
(2) The Bamunpokri	ditto	,,	...	...	1,000
(3) Sibhok depôt	ditto	,,	...	...	2 000
(4) Sitapahar	ditto	,,	...	...	500

22. Neither at Kalimpong nor at Daltongunj have bungalows been built as yet. At the former place the Deputy Commissioner has built a house, which the officer occupying it has kindly offered to share with the forest officer until we can build a house, and the officer in charge of the Palamow division has temporarily secured a house on rent.

23. During the year 1878-79 the Conservator proposes to build a small house at Goompahar and 2 in the outer hills in the Darjeeling and Kurseong divisions, for the accommodation of Sub-Assistant Conservators or Rangers.

24. *Reproductive measures.*—The area of plantations on the 1st April 1878 amounted to 524 acres. During the year under review 111 acres were added, bringing the total area planted up to 637 acres. The distribution is as follows:—

Name of Division.	Oaks, chestnuts, magnolias, and walnuts.	Conifers.	Spanish chestnut, toon, and walnut.	Teak, toon, sâl, and sissu.	Sâl.	Bamboos.	Baobab.	India-rubber.	Total.
Darjeeling	144	.. ...	5	.....	...	...	...	. . ..	149
Kurseong	.....	42	... .	213	...	1	..	1	257
Julpigoree	.....	.....	.....	3	..	...	...	.. .	3
Buxa	.....	.....	.....		36	...	...	.....	36
Sunderbuns	.....	.....	.....	..	...	1	1	.....	2
Chittagong	...	.....	.... .	190	...	...	..	.....	190
Total ...	144	42	5	406	36	2	1	1	637

25. The four chief plantations are those of oaks, &c., in the Darjeeling division, the teak plantations at Bamunpokri and Sitapahar, and the sâl plantation in the Buxa reserve. The area of the plantation in the Darjeeling district will now rapidly increase, as compartments of old and irregular forest are cleared for the supply of Darjeeling and re-planted. As a first beginning we have planted about 30 acres in June and July 1878.

26. At Bamunpokri we have planted a compact block of 215 acres with teak mixed with toon, sâl, and sissu. It is not intended to extend the plantation, but to devote future efforts upon the natural reproduction of sâl and other trees, assisted by the sprinkling in of seed, whenever necessary.

27. In Chittagong we have so far planted 190 acres, chiefly with teak, of which only 14 were added during the year under review, owing to the seed not germinating. Preparations have been made to plant out 100 acres during the present rains, but no report of the result has reached the Conservator as yet.

28. The planting of sâl in Buxa has so far been highly successful, whereas the sowing of sâl seed has proved only a partial success, because the grass had

to be cleared away, to reduce the danger from fire, when it was found that without the shade of the grass the tender seedlings succumbed to the hot sun. Hence for the present extensions will be made with transplants to produce the belt of trees which is destined to form a fire belt, behind which the sowing of seed over large areas is to be effected.

29. Regarding the experiments made during the year 1877-78, with certain economic plants in the Botanical Garden at Howrah, Dr. King has sent the following communication, which, in accordance with the orders of Government, is here inserted.

"*Eucalyptus of various species.*—A quantity of seeds of various species of *Eucalyptus* was sent by the Government of India during the year for trial in the garden. Of these a considerable proportion failed to germinate, and of those which did germinate the majority of the seedlings damped off during the rainy season, and at the end of the year only three plants remained alive. This result is quite in accordance with former experience, which goes to show that the project of ameliorating the malarious climate of Lower Bengal by the free planting of *Eucalyptus* is perfectly Utopian. The water-logged alluvial soil and hot steamy climate of this part of India are totally unsuited to any species of these Australian trees which has yet been tried. Moreover, it seems highly doubtful whether even where it grows vigorously the *Eucalyptus* has an especial effect on malaria beyond drying up the soil. I understand that many species of *Eucalyptus* grow well at Shillong and at several of the stations on the North-West Himalaya, a fact which in itself offers a strong argument against the probability of their success in a climate so totally different as is that of Calcutta.

"*Carob.*—A small quantity of the seed of the carob of the Mediterranean (the *ceratonia siliqua* of botanists) was sent some time ago to the garden to be sown with the view of introducing this tree into Bengal. The pod of this species, as Government are aware, contains a sweet nutritious pulp, which forms an excellent food for cattle and horses. But the tree does not naturally affect a climate and soil in the least like those of the Gangetic delta, and I never looked on the attempt to add it to the fodder plants of Bengal as at all likely to succeed; and as a fact the majority of the seedlings damped off before they were six inches high. About fifty seedlings remain, some of which have been planted out; while the others, which are too small for planting out, remain in pots. But although all have been duly cared for, none are vigorous.

"*Seeds from Dr. Forbes Watson.*—Four pounds were received in October 1876 without name. These germinated well, and there are now in the nurseries 2,354 young plants. In addition to these, six have been planted out in the open ground, where they are growing well, but have not as yet flowered. I propose to plant out a number of the plants this season.

"*India Rubber.*—The seedlings of Para rubber, received in the beginning of 1877, were partly retained in this garden and partly sent to the cinchona plantation in Sikkim. Several of these plants have died during the year. The plants that still remain here (14 in number) are, however, healthy, and have grown fairly well. Every care is being taken of them, and I hope soon to be able to report that they have been increased in number by artificial propagation. But former experience has made me wary of allowing cuttings to be made until the parent plants have had plenty of time thoroughly to establish themselves. A quantity of Ceara rubber plants, collected in South America by Mr. Cross and sent to this garden by Sir Joseph Hooker, were received along with the Para rubbers. About one-third of the plants in this consignment were found on arrival to be in bad condition or dead. Of the remainder, 5 were sent to the cinchona plantation and the balance were retained here. One of the plants here is now 10 feet high, and the others vary in height from 2 to 5 feet; but they all look more or less weak and lanky, as if the climate were too damp for them. This plant (a species of Manihat) was found by Mr. Cross in quite a different kind of country from the Para rubber; and it appears more likely to succeed in India than the former. My object, both with the Para and Ceara rubbers, will be to propagate as large a stock of young plants of each as possible; to find out spots with climates suitable for each; and to have small plantations made, wherever efficient supervision can be secured on such place.

"*Baobab.*—The curious baobab tree is a native of Africa, but appears for a long time to have been a favorite with Mussulmans in India. Large trees of it are found planted near Calcutta, Patna, Agra, and at many other places in India. Baobab bark began some years ago to be largely imported into London from the Portuguese settlements in Africa, and proved an excellent paper fibre. At the suggestion of Sir Joseph Hooker I made a small plantation of it three years ago with the view of testing the possibility of growing it sufficiently cheaply to be used as a paper fibre. For the past two years the plants put out here received a rough kind of cultivation, and the grass between them was regularly cut; but as this could hardly be afforded in a plantation conducted on commercial principles, I did not think it fair to the experiment to continue even the little cultivation which the plants had hitherto received. During the past year the young baobabs have therefore had to fight their own battle, and it is quite clear that the majority of them are going to be mastered by the coarse deep-rooting grasses which infest the soil everywhere on the plains of Bengal. Such plants as enjoy the shade of a large tree in the neighbourhood of the plantation continue to look very fairly healthy, but those that stand in the open look very sickly. If baobab were to be grown to a profit it would hardly be feasible to give it cultivation, however rough, after the first year, and it might not always be possible to give it shade Considering, moreover, the comparatively slow growth of the species (a tree of 20 years old girth about three and a half feet at the base, and is about fifteen feet high). I am driven to the conclusion that baobab is not likely to afford in India a sufficiently cheap paper fibre. My own impression is that a plant yielding an annual crop is more likely to fulfil the financial conditions of success than any perennial which, like baobab, yields a crop only after many years.

"*Prosopis pallida.*—In May 1877 there were 52 seedlings of this of an average height of nine inches. These had been raised from seed sent by the Government of India during 1876. Of these, six plants damped off during the rainy season of 1877. At present there are 45 seedlings in pots, and one has been planted out, which is growing vigorously."

Dr. King agrees with the Conservator that the experiments with baobab and bamboos (the latter not touched upon by him here) with the view of producing a cheap paper stock are hopeless ventures.

30. *Creeper cutting* has been attended to in Buxa and Chittagong.

In Buxa we have cut the creepers inb lock III, compartment II, area = 973, this being the only worked compartment in which the work in question had not been executed.

In the Maiani reserve, Chittagong division, we have cut the creepers on 2,785 jarul, tali, chapalish, toon, and gurjun trees.

In Kurseong operations had been stopped for a year, as heavy timber operations prevented the necessary establishment being made available. The work will be taken up again this year.

31. *Protection from fire.*—During the year 1876-77, which was favorable for fire protection, we succeeded in keeping five reserves, comprising 66,127 acres, free from fire. The year under review was highly unfavorable, owing to the dry weather and the prevailing strong storms during the fire season. Arrangements had been made to protect 122,728 acres, out of which we were successful over 78,834 acres. The details of the areas are these:—

Division	Forest.	Area attempted to be protected	Failures.	Area actually protected
Kurseong	The Sibhok forest	1,554	1,554	...
	" Bamunpokri "	1,873	...	1,873
Julpigoree	" Muraghat "	10,900	5,900	5,000
Buxa	" Buxa "	91,100	35,440	55,660
	" Bholka "	12,800	1,000	11,800
Sunderbuns	" Seepsha "	1	...	1
Chittagong	" Sitapahar "	5,000	.....	5,000
Total	.....	122,728	43,894	78,834

32. It will be observed that about one-third of the area attempted to be protected has been burnt, and about two-thirds saved. Considering the gales

which blew in March in the Kurseong, Julpigoree, and Buxa divisions, the Conservator thinks the result is not unfavorable; and, at any rate, it justifies us in the hope that we shall succeed better year after year, as our preventive measures become more perfect by experience. The sum expended on fire protection during the season amounts to Rs. 1,983.

4.—Yield and Working of the Forests.

33. We have extended departmental working to the Darjeeling Hill Forests during the year, as there was great danger of the forests around the station of Darjeeling not being capable of yielding all the material required, unless carefully husbanded. Besides, we had sleeper operations in the Teesta, Kurseong, Julpigoree, and Buxa divisions, in order to supply the material for the Julpigoree-Silligoree and the Rungpore-Teesta extensions of the Northern Bengal State Railway.

34. The departmental timber operations are exhibited in the following five statements:—

a.—Trees felled during the year.

Division.	Sál.	Sissu.	Upper hill trees.	Sundri posts.	Others.	Total.
Darjeeling division	.....	.....	4,298	.....	.....	4,298
Kurseong ditto	1,125	.....	.....	.....	28	1,153
Julpigoree ditto	420	.....	.....	.....	.....	420
Buxa ditto	2,325	443	.....	.....	.....	2,768
Sunderbuns ditto	.....	.....	.....	2,000	.....	2,000
Total ...	3,870	443	4,298	2,000	28	10,639

b.—Timber brought to depôt from the forests.

Division.	Toon logs.	Sál logs.	Sissu logs.	Sundri posts.	Sleepers.	Other pieces.	Total. Pieces.	Total. C. ft.
Darjeeling division	.....	.....	.....	.....	.....	2,038	2,038	4,483
Teesta ditto	.....	85	.....	.....	1,278	.....	1,363	4,986
Kurseong ditto	.....	444	10	.....	29,934	544	30,932	55,363
Julpigoree ditto	3	331	.....	.....	3,965	1,399	5,608	12,171
Buxa ditto	.....	255	23	.....	14,596	1,128	16,002	28,824
Sunderbuns ditto	.....	.....	.....	2,000	.....	.....	2,000	750
Total ...	3	1,115	33	2,000	49,773	5,019	57,943	1,06,577

		Mds.	Srs.
Add Darjeeling division	Firewood	1,71,685	
	Charcoal	6,238	16
Kurseong ditto	Firewood	1,028	
	Charcoal	20	
	Total ...	1,78,971	16

c.—Transferred from one depôt to another.

Division.	Toon logs.	Sál logs.	Sissu logs.	Sundri posts.	Sleepers.	Other pieces.	Total. Pieces.	Total. Cubic feet.
Teesta division	.....	45	.....	.....	872	.....	917	2,146
Kurseong ditto	.....	20	.....	.....	741	69	830	1,038
Buxa ditto	.....	442	.....	.....	12,068	230	12,740	29,537
Total ...	.....	507	.....	.....	13,681	299	14,487	33,321

d.—Timber removed from depôts by purchasers.

Darjeeling division	.....	.....	.....	.....	.....	2,038	2,038	4,483
Teesta ditto	.....	2	.....	.....	546	.....	548	884
Kurseong ditto	.....	604	387	.....	32,535	377	33,903	66,251
Julpigoree ditto	.....	170	5	.....	3,323	774	4,272	7,820
Buxa ditto	.....	510	4	.....	6,147	352	7,013	20,847
Sunderbuns ditto	.....	.....	.....	2,000	.....	.....	2,000	750
Total ...	.....	1,286	396	2,000	42,551	3,541	49,774	101,035

		Mds.	Srs.
Add—			
Darjeeling division	Firewood	1,67,173	20
	Charcoal	5,872	16
Kurseong ditto	Firewood	2,814	
	Charcoal	20	
	Total ...	1,75,879	36
Palamow division	Bamboos	54,403	

e.—Annual timber account of the year.

	Pieces.	Cubic feet.		Pieces.	Cubic feet.
Balance in hand at commencement of year.	9,309	131,780	Removed by purchasers	49,774	101,035
Received from the forests	57,943	106,577	Cut into sleepers, &c	1,387	35,163
Transferred from one depôt to another ...	14,487	33,321	Lost and used by the department... ...	755	4,902
			Transferred from one depôt to another ...	14,487	33,321
			Balance in hand at close of year	15,336	97,257
Total ...	81,739	271,678	Total ...	81,739	271,678

It will be observed that we have brought to depôt 57,943 pieces, containing 106,577 cubic feet, while we sold 49,774 pieces, containing 101,035 cubic feet. These figures compare favorably with those of the year 1876-77, when we brought to depôt 114,171 cubic feet of timber, but sold only 59,873 cubic feet, or about one half. The more favorable result of the year under review is due to the demand caused by the construction of the Northern Bengal State Railway and other extensive public works. With regard to future prospects it may be mentioned that the demand for sâl timber in the shape of sleepers will be at least equal to the supply, if not greater, and local requirements for other material are rising so rapidly in the Darjeeling district that great fears exist as to whether we shall be able to satisfy all demands.

35. Financially the departmental timber operations show as follows :—

Name of Division.	Quantity sold.		Average amount realized.	Average expenditure, including share of establishment, elephants, tools, &c.	Surplus.	
			Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling ...	Firewood and Charcoal	Mds. 1,73,046½	24 2 3	16 2 11	7 15 4	Per 100 mds. of firewood and charcoal.
Kurseong ...	Timber	c. ft. 66,251	1 3 9	0 7 11	0 11 10	Per cubic foot.
Buxa	Ditto	,, 20,847	1 10 0	1 4 7	0 5 5	Ditto.

The timber operations in the remaining divisions were on a small scale. As we must be guided by averages, and not by the results of individual years, the following table is added :—

Name of Division.	Surplus.					
	1874-75.	1875-76.	1876-77.	1877-78.	Average.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling	.....	.....	.....	7 15 4	7 15 4	Per 100 mds. of firewood and charcoal.
Kurseong	0 5 10	0 6 13	0 8 1	0 11 10	0 6 9	Per cubic foot.
Buxa	0 5 2	0 9 4	0 8 0	0 5 5	0 7 0	Ditto.

It seems a strange coincidence that the average surplus per cubic foot during the last four years should come to almost the same amount in the Kurseong and Buxa divisions, as the conditions under which the timber operations are conducted differ greatly. The conclusion may justly be drawn that the prices of timber in these divisions have been fixed correctly, taking into consideration the difference in the cost of bringing the timber into the market. When fixing the prices, the Conservator has throughout been guided by the desire to obtain eight annas per cubic foot clear, irrespective of the cost of permanent establishment, and the result is a net surplus of seven annas, and which amount would be about arrived at by deducting the cost of establishment per cubic foot from eight annas.

36. The following figures show the quantities of material removed from the forests by purchasers and consumers :—

Darjeeling Division.

Green trees	403	
Dry timber	464·75	cubic feet.
Firewood and charcoal, coolie tickets ...	25	
Ditto, maunds	244	
Malingo bamboos	300	
Ditto permits	130	
Grazing, head of cattle	1,844	
Ditto, ticket for leaves	1,125	
Other minor produce, cane tickets ...	7	

Teesta Division.

Green trees	9	
Bamboos	7,693	
Grazing, head of cattle	510	
Ditto, tickets for leaves	40	
Fodder grass, bundles	206	
Other minor produce, thatch grass, bundles ...	2,200	

Kurseong Division.

Green trees	521	
Dead trees	275	
Building posts	50	
Dry saj	42	cubic feet.
Firewood, maunds	91,713	
Ditto, carts	911	
Ditto, feet	115	
Bamboos	85,163	
Grazing, head of cattle	6,716	
Ditto, tickets	216	
Thatch grass, bundles	19,477	
Canes, bundles	453	
Ditto, tickets	10	
Drift wood	2411·5	cubic feet.
Ditto firewood, maunds	130	

Julpigoree Division.

Green trees	30	
Dry trees	1,866	
Firewood, tickets	6	
Bamboos	300	
Grazing, head of cattle	2,340	
Cane, tickets	13	
Confiscated and drift wood	33	

Buxa Division.

Green trees	8	
Dry timber	1,936	
Dug out boat	1	
Firewood, cart loads	287	of 10 maunds each.
Ditto, pony loads	30	
Bamboos	3,502	
Grazing, head of cattle	3,221	
Fodder grass, loads	4	
Cane, tickets	1	
Thatch grass, loads	3,817	

Palamow Division.

Poles and rafters	300	
Charcoal, head loads	180	
Bamboos	2,900	
Grazing	.....	quantity unknown.
Other minor produce	.....	Ditto.

Sunderbuns Division.

Timber	...	...	...	11,74,714¼	maunds.
Firewood	...	...	...	54,63,708	ditto.
Other minor produce	...	...	...	24,64,828	ditto.
Honey	...	...	...	1,062	men.

Chittagong Division.

Timber	...	...	...	37,529	cubic feet.
Bamboos	...	...	...	12,078,555	
Sunn grass	...	...	...	5,316,493	bundles.
Canes	...	...	...	2,728,408	ditto.
Gurjun oil	...	...	...	418	maunds.

With the exception of Chittagong, where three bad harvests have affected the prosperity of the people, there is a great increase as compared with last year.

5.—Financial Results.

37. The financial results of the Forest Department in Bengal during the last seven years are those given in the subjoined table :—

Years.	Receipts.	Charges.	Surplus.	Area of reserved forests.
	Rs.	Rs.	Rs.	Square miles.
1871-72	87,260	67,506	19,754	106
1872-73	1,16,690	62,554	54,136	106
1873-74	1,23,732	81,068	42,664	120
1874-75	1,85,914	98,654	87,260	1,467
1875-76	1,98,274	1,39,086	59,188	2,585
1876-77	2,22.401	2,11,689	10,712	3,390
1877-77	4,32,363	2,61,112	1,71,251	3,430

These figures show that the revenue has been nearly doubled during the year under review and the cash surplus has risen from Rs. 10,712 to Rs. 1,71,251. The value of stock on hand has fallen by Rs. 14,913 : hence the value of the year's transactions amounts to Rs. 1,56,338, as compared with Rs. 87,468 in 1876-77, so that a great improvement has taken place in every respect. The Conservator feels confident that the surplus in future years will be still greater, and that the Government forest estates in Bengal may now be said to have become a source of permanent and increasing returns to the State.

38. By arranging the receipts and charges according to the main budget heads, we obtain the following table —

	Receipts.		Charges.		Surplus.	Deficit.
		Rs.		Rs.	Rs.	Rs.
I.—Departmental timber operations.	I and III.	1,70,621	I and III, ½ of VI and ½ of B.	1,24,366	46,255	.....
II.—Other revenue	II, IV, and V.	2,61,742	II, IV, V, ½ of VI, IX and ½ of B.	74,068	1,87,674	.....
III.—Formation, protection, and improvement of forests.		.....	½ of VI, VII, VIII, and ½ of B.	62,678	.....	62,678
Total ...	.....	4,32,363	.....	2,61,112	1,71,251	.....

From these figures, which have been arranged according to the orders issued in the Government of India's letter No. 309, dated 20th February 1877, Department of Revenue, Agriculture, and Commerce, it follows :—

1*st.*—That the departmental timber operations have yielded a surplus of Rs. 46,255, equal to 27 per cent. of the receipts on account of timber sold from depôts, although the expenditure charged against these operations includes a portion of the pay of establihments, &c., of the Palamow, Sunderbuns, and Chittageng divisions, where no departmental timber operations have been conducted.

2nd.—In spite of our having spent Rs. 62,678 on the formation, protection, and improvement of the forests, we have still a cash surplus of Rs. 1,71,251, which is equal to 40 per cent. of the gross receipts.

6.—General Remarks.

39. The *New Forest Code*, which came into force on the 1st April 1877, has been a great help to divisional officers in the conduct of their office work. Although the timber returns may perhaps be somewhat more complicated than necessary, the Conservator found that on the whole the business of the department is conducted in the manner prescribed by the Code.

40. *The Conservator's inspection tours* extended over the Darjeeling, Teesta, Kurseong, Julpigoree, Buxa, Sunderbuns, and Chittagong divisions, Palamow being the only charge not visited by him during the year.

41. The Conservator regrets having to record that the *health* of both the superior and subordinate establishments has not been good during the year, one officer having died and several others having suffered from fever, liver, and other diseases, the Conservator himself amongst the latter. The subordinate establishment, especially that in the Darjeeling Terai and in Chittagong, suffered extensively from fever.

7.—Officers' Services.

42. *Mr. W. Jacob*, Deputy Conservator of the Forests, second grade, was in charge of the Palamow division during the year. As far as the Conservator can judge from the reports received, Mr Jacob has made very good progress in the demarcation of the reserves, but his actions in several other respects have not been approved of.

It is part of the Conservator's programme to visit Palamow during the coming cold season, and as Mr. Jacob has of late shown signs of a desire to act more up to the orders given to him than was previously the case, the Conservator hopes to come back from his inspection satisfied with the progress of work in the division.

Mr. J. C. McDonell, Deputy Conservator, third grade, was in charge of the Julpigoree division throughout the year. He has worked to the entire satisfaction of the Conservator. Mr. McDonell has suffered a good deal from fever, enlarged liver and spleen, and he was transferred to the charge of the Darjeeling division at the close of the year.

Mr. H. H. Davis, Assistant Conservator, first grade, was in charge of the Chittagong division until September 1877, when ill-health necessitated his proceeding on sick leave. This officer went to Chittagong with a most powerful constitution, but seven years' service in that district reduced him to such an extent that he left quite broken down. He is expected back from furlough at the end of 1878.

Mr. W. Johnston, Assistant Conservator, second grade, was in charge of the new Darjeeling division until February 1878, when he took charge of the Teesta division. The Conservator is satisfied with his work.

Mr. E. Fuchs, Assistant Conservator of Forests, second grade, in charge of the Buxa division, has worked well.

Mr. G. A. Richardson, Assistant Conservator, second grade, in charge of the Sunderbuns division, has done excellent work throughout the year.

Mr. E. G. Chester, Assistant Conservator, second grade, assumed charge of the Chittagong division in September 1877. The Conservator is thoroughly satisfied with his work during the year.

Mr. F. B. Manson, Assistant Conservator, second grade, in charge of the Kurseong division, distinguished himself by his great energy in carrying sudden and extensive timber works to a successful end. He has done excellent work during the year, although he suffered a good deal from fever, owing to the unhealthiness of the forests under his charge.

Mr. F. H. Bonham-Carter, Assistant Conservator of Forests, second grade, was in charge of the Teesta division until January 1878, when he fell ill with dysentery, of which he died on the 27th of that month. In him we have lost a very promising young officer of great energy, who, the Conservator has no doubt, would have made his mark in the department.

Mr. H. R. Ring, Officiating Assistant Conservator, third grade, joined from Coorg just before the close of the year. He assumed charge of the Julpigoree division in April 1878.

Mr. W. M. Green, Sub-Assistant Conservator, on probation, has worked to the satisfaction of the Conservator, who has recommended him for confirmation in his appointment.

The following officers have joined the Department in Bengal since the close of the year:—

Mr. G. W. Strettell, Deputy Conservator of Forests, second grade, transferred from Burma.

Mr. R. N. Anstruther, Assistant Conservator, third grade, transferred from Burma.

Mr. L. G. Smith, Sub-Assistant Conservator, on probation, newly appointed.

SECTION II—RESERVED FORESTS.

A.—DARJEELING DIVISION.

1.—Area and Boundaries.

43. (*a*)—*Area.*—Mount Sinchal, with an elevation of 8,606 feet above the level of the sea, is situated in the centre of that part of the Darjeeling district which lies to the west of the river Teesta. From it three spurs run out, namely one towards the south, running in the direction of Kurseong; a second towards the west, joining Sinchal with the Singalela range; and a third towards the north-east, ending at the junction of the Great Rungit and the Teesta. The upper parts of these three spurs, as far as they have not been sold to private parties, form the State forests of the Darjeeling Forest Division, as now constituted.

44. The areas are entered in the records of the Deputy Commissioner's Office as consisting of the following blocks:—

	Acres.	Roods.	Poles	
Rangirum	1,987	2	18	
Poomong	1,008	3	6	
Rungli Rungliot ... ... } Gielle	2,951	1	39	
Tukdah	844	0	0	
Sinchal	5,121	0	13	
Dooteriah	468	3	25	
Horticultural block	97	1	10	
Parmagiri	2 018	1	27	
Palungdong	1,392	2	0	
Rungbong	471	0	0	
	556	0	0	
Total	16,917	0	18	= 26 square miles.

These blocks form the gazetted reserves. As it had become evident for some time past that the reserves are not of sufficient size to secure an amount of forest produce equal to the demand, efforts were made to increase the area. During the year under review the following areas have either been actually made over to the department or have been promised, as soon as their boundaries have been demarcated:—

	Approximate area Acres.
The Goompahar forest	3,000
Pugrainbong	500
Mungwa ... ... } Hoom ... ... } Rungli-Rungliot ... ... } Poomong ... ... }	1,500
Rungbhi	2,500
Total	7,500

This area, added to the reserves, gives a total of 24,417 acres, equal to 38 square miles, stocked with oaks, chestnuts, magnolias, laurels, maples, and a great variety of other trees.

It is expected that all reserves will have been gazetted under the new Forest Act before the end of March 1879.

45. (*b.*)—*Demarcation.*—The reserved forests in the Darjeeling division were all demarcated about ten years ago, but in course of time some of the boundary lines were lost sight of. Several of these were redemarcated in 1876-77, and in 1877-78 the boundaries of the Poomong, Rungli-Rungliot, Gielle, Hoom, and Mungwa blocks, were laid down. What remains now could not be done without the assistance of a Settlement Officer and a professional survey party, owing to uncertainty about the original boundary.

Arrangements have been made by Government to supply both during the ensuing field season, so that, no doubt, all boundaries will have been permanently laid down by the end of the present year.

2.—Protection and Improvement.

46. (*a.*) *Establishments.*—Hitherto we have employed one ranger, two foresters, and eight watchers in the management and protection of these forests; but owing to the careful and detailed management which must be given to them, it will be necessary to divide the area into three ranges, according to the three spurs, in the following manner :—

1. *The Goompahar Range*, comprising—
   The Goompahar
   ,, Palungdong
   ,, Rungbong
   ,, Pugraingbong
   ,, Parmagiri
   } (Blocks) area = 7,938 acres.
2. *The Rungbul Range*, comprising—
   The Sinchal
   ,, Dooteria
   ,, Horticultural
   } (Blocks) area = 5,687 acres.
3. *The Tukdah Range*, comprising—
   The Rangirum
   ,, Rungbhi
   ,, Poomong
   ,, Rungli-Rungliot and Gielle.
   ,, Hoom
   ,, Mungwa and
   ,, Tukdah
   } (Blocks) area = 10,792 acres.

These ranges should serve as training grounds for young officers, and with this view one Sub-Assistant Conservator has already been posted to the Goompahar range, where his progress can be closely watched by the Conservator of forests. As soon as practicable, the Tukdah range will also be established separate from the Rungbul range.

47. (*b.*) *Breaches of Forest Rules.*—During the year two cases of breaches of the rules, in which 11 persons were concerned, were taken into court, and in both cases convictions were obtained. The offences referred to unauthorized cutting of wood.

48. (*c.*) *Reproductive Measures.*—A commencement has been made at Rungbul in the Rungbul range, and at Rangirum in the Tukdah range.

49. *Rungbul.*—An area of 144 acres, which had been cleared to obtain timber for military works, was planted up with oaks, magnolias, chestnuts, and walnuts between the years 1868 and 1871. It was then left to itself, and when the Conservator saw it in 1873 it had almost been destroyed by cattle. Attempts were made to keep the latter out, but as this failed a hedge was constructed around the whole plantation and kept up ever since. The effect has been wonderful, and what appeared almost a hopeless failure in 1873 is now quite sufficiently stocked, the blank places having been filled by self-sown maples and other trees. The maples, especially *Acer Campbellii*, have proved themselves to be the foresters' greatest friends in the forests around Darjeeling.

They yield a very fair firewood, only that of oak being preferred to it, and they can be raised with the least amount of trouble. Hence the tree will here have to take to some extent the place of the birch in European forests; that is to say, it will form the main stock in reproductive measures, the more valuable timber trees being planted among them scattered over the area. Subsequently the maples can be thinned out partly, so as to obtain as great a proportion of the most valuable trees as practicable.

50. It will be shown further on that a new system of working these forests, chiefly by departmental agency, has been inaugurated during the year. As a preliminary measure towards replanting the cleared area, a large nursery had been established at Rungbul several years in advance; and in last year's report it was stated that 34,152 seedlings were growing in it. Out of this number, however, only 2,288 were magnolias and 741 oaks, the rest consisting of walnuts, ash, deodar, and other pines. Experience has shown that to raise oaks and magnolias in nurseries is combined with a good deal of difficulty, because in some years no seed at all is procurable, and in others it will not germinate. Besides, we found it very difficult to keep squirrels out of the nurseries. Under these circumstances, the maple will prove an exceedingly useful auxiliary.

A quantity of seed of acacia melanoxylan, received during the year, has been sown at Rungbul, where it has germinated well; it is, however, too early yet to see whether the species will thrive in these hills.

51. During the year under review no extension has been made at Rungbul, but since the close of the year we have planted out 25,000 seedlings, which operation will be recorded in detail in next year's report. Further extensions must now be made annually.

52. *Rangirum.*—The area of this little plantation, which was started in 1874-75 to see whether Spanish chestnuts would thrive, has been increased from three to five acres during the year, the plants consisting of Spanish chestnuts, toon, and walnut. The last batch of Spanish chestnuts, sent out by Her Majesty's Secretary of State for India, was received early in 1877, and it produced about 1,200 seedlings, so that we have altogether about 1,500 seedlings of this kind. It is not intended to send any more seed to Bengal, and this seems a wise conclusion, as the results have been anything but satisfactory hitherto. On the other hand, we shall extend the plantation on a much larger scale by planting toon and walnut, which should succeed well, the elevation of the spur, where the planting has been started, ranging from 6,000 feet down to about 3,000 feet above the sea.

3.—Yield and Working.

53. The forests in the Darjeeling division have to yield, or will shortly have to yield, the material required for the station of Darjeeling, the cantonment of Jellapahar, for Jore Bungalow, and for the quarter part of the tea plantations situated on both sides of the Tukdah and Goompahar spurs, and below the Hill Cart Road from Jore Bungalow to close to Kurseong. As some of the plantations have still material on their own lands, it has been impossible to ascertain the total quantity of timber, firewood, and charcoal required, but from the data in our possession it is clear that the quantity will be larger than the present forest estates can yield for any length of time. Until lately the system of working the forests has been that private parties bought trees at certain rates, and cut them up into timber, firewood, and charcoal. The natural consequence of this practice was that only the very best trees were bought, while hollow and crooked trees remained in the forest unused. It was out of the question to continue this system any longer, and the Conservator commenced, therefore, to supply Darjeeling, Jellapahar, and a few plantations by departmental agency with firewood and charcoal; and this system will by degrees have to be extended over the whole of the Darjeeling division, or else after a comparatively short term of years material for building purpose will have become almost unobtainable.

54. The commencement was made in the Rungbul, Dooteriah, and Poomong forests. The two former, being situated close to the cart road, had been cleared of almost all good trees, whereas the inferior trees remained on the ground. Under these circumstances it was necessary to make a clean cut of the area in question, and to plant it up again artificially. The Conservator does not wish it to be understood that this mode of reproduction is the one to be

adopted generally. On the contrary, when we get to the more regularly stocked areas, it will in all probability be preferable to restock by natural reproduction.

55. The areas at Rungbul, where cutting has been carried on during the year, will henceforth be known as compartments 1, 8, and 9 in the Rungbul block. Of the Dooteriah forest only part has been cleared during the year, and the remainder is being worked now. The boundaries of compartments have not yet been fixed. The Poomong forest is situated on the south-eastern slope of the Tukdah ridge, and from it the Gielle tea plantation has been supplied with charcoal.

56. The following trees have been cut by Government agency, the details of which will be found in form No. 53, attached to this report:—

Block and Compartment.	Names of trees.	Number of trees.	Proportion of each species in per cent of the total number of trees.	REMARKS
Rungbul.				
Compartment 8	Lali	233	29·3	Cut into firewood for Jollapahar for brick burning, also into fenders
	Booke	139	17·3	
	Phalat	105	13·2	
	Kaula	80	10·1	
	Phaila	63	8·0	
	Kabashi	39	5·0	
	Katoos	38	4·8	
	Bhudrassi	25	3·2	
	Kharani	22	2·8	
	Dubdhubia	17	2·1	
	Doodoola	12	1·5	
	Mayah	11	1·4	
	Sissi	6	0·8	
	Jingni	3	0·4	
	Lepchaphal	1	0·1	
		794	100·0	
Compartment 1	... .	67	.....	Cut into firewood
Compartment 9	....	43	.....	Converted into charcoal
Dooteriah	.....	1,065	.....	Cut into firewood.
Ditto ...	....	2,006	.....	Converted into charcoal.
Poomong	....	323	.....	
	Total ...	4,298	.....	

57. As compartment 8, Rungbul block, has been cleared entirely during the year, the Conservator has given the different kinds of trees found on the area, in order to show in what proportion they appeared. It will be observed that the laurels (lali, kaula, lepchaphal, and sissi) comprise 40·3 per cent. of the of the whole stock, while oaks and chestnuts (booke, phalat, and katoos) come next with 35·3 per cent.; the two together comprising 75·6 per cent. The oaks and chestnuts, however, grow into much larger trees than the laurels, so that in quantity the former stand first. The figures derived from compartment 8 give only an approximate idea of the composition of the forest, as a considerable number of trees had been cut before, whereby the magnolias, for instance, had entirely disappeared. After another year more complete data will be available on this subject.

58. Of the trees enumerated above, 1,926 have been cut up into firewood and 2,372 burnt into charcoal. For the former those are selected which yield the best firewood, and amongst these booke (*quercus lamellosa*) and phalat (*quercus annulata*) stand first; while kabashi, especially *Acer Campbellii*, comes next.

The laurels yield a firewood of only middling quality, and the wood of chestnuts and magnolias is strongly objected to in these hills for firewood. Hence the last named are burned into charcoal, that of chestnut being the most valuable of all.

59. The following quantities of timber, firewood, and charcoal were brought to depôt during the year:—

Fenders	2,036	= 4,442	cubic feet.
Oaks	2	= 41	„
Total Timber ...	2,038	= 4,483	„

	Mds.	Srs.
Firewood	1,71,685	0
Charcoal	6,238	16

As a great portion of the firewood and charcoal derived from the trees cut has not been brought to depôt during the year, it is impossible to state now how much firewood or charcoal on an average each tree yielded. Those cut up into firewood comprise chiefly the larger kinds of trees, whereas many species, of which trees have been converted into charcoal, grow only to a moderate size: hence the outturn of firewood must appear much more favourable than that of charcoal. Of the 1,926 trees cut for firewood, 1,71,685 maunds were delivered in depôt, or at the rate of 89 maunds per tree. Similarly of the 2,372 trees cut for charcoal, 6,238 maunds and 16 seers reached the depôt during the year, or at the rate of about three maunds per tree. Taking into consideration the quantities brought to depôt since the close of the year, the outturn of firewood per tree will be over 100 maunds, and that of charcoal from 12 to 15 maunds. These data will become more accurate year by year.

60. The fenders were sold to the Public Works Department, and the two oak peices to the Darjeeling Jail. Of the firewood we sold—

	Mds.	Srs.
To the Department Public Works	3 533	0
„ Commissariat Department, Jellapahar... ...	71,381	0
„ Residents of Darjeeling, Jellapahar, and Jore Bungalow	92,259	20
Total sold ...	1,67,173	20

Of the charcoal we sold—

To the Manager, Happy Valley tea estate	1,000	0
„ „ Gielle tea estate	500	16
„ Residents of Darjeeling, Jellapahar, and Jore Bungalow	4,372	0
Total sold ...	5,872	16

61. The financial aspect of the firewood and charcoal operations is exhibited thus:—

	Rs.	A.	P.	
1,73,046½ maunds of firewood and charcoal sold realized on an average	24	2	3	per 100 mds.
The total expenditure, including share of establishments, &c., &c., amounts to	16	2	11	ditto.
Surplus per 100 maunds ...	7	15	4	

or Rs. 8 in a round figure.

62. The number of trees and other produce removed from the forests by purchasers during the year is exhibited below :—

Description.	Number of trees or quantity.	Amount realized and due.	Rate.	Remarks.
		Rs. A. P.	Rs. A. P.	
Toon	2	50 0 0	25 0 0	
Champ	59	1,475 0 0	25 0 0	
Booke	106	1,590 0 0	15 0 0	
Phalat	9	135 0 0	15 0 0	
Katoos	67	1,005 0 0	15 0 0	
Pipli	12	180 0 0	15 0 8	
Kaula	57	570 0 0	10 0 0	
Gobria	25	250 0 0	10 0 0	
Chilauni	24	240 0 0	10 0 0	
Lali	21	210 0 0	10 0 0	
Kabashi	11	110 0 0	10 0 0	
Lepchaphal	9	90 0 0	10 0 0	
Karani	1	10 0 0	10 0 0	
Dry and fallen timber.				
Champ	51·75 c. ft.	9 11 3	0 3 0	Per c. ft.
Booke	177 „	16 9 6	0 1 6	„
Chilauni	236 „	14 12 0	0 1 0	„
Total ...	464·75 c. ft.	41 0 9	.....	
Total of II *a*. ...	.....	5,956 9 9	.....	
Firewood and charcoal.				
Tickets	18	90 0 0	5 0 0	
Ditto	7	21 0 0	3 0 0	
Maunds	244	15 5 0	.....	
Total of II *b*. ...	.....	126 5 0	.....	
Bamboos.				
Malingo bamboos	300	1 8 0	0 8 0	Per 100.
Permits for bamboos	130	260 0 0	2 0 0	
Total of II *c*. ...	.....	261 8 0	.....	
Grazing and fodder grass.				
Head of cattle	1,844	922 0 0	0 8 0	
Tickets for leaves	1,125	562 8 0	0 8 0	
Total of II *d*. ...	.....	1,484 8 0	.....	
Other minor produce.				
Canes, tickets	7	42 0 0	6 0 0	
Total of II *e*. ...	.....	42 0 0	.....	
Grand total of II *a, b, c, d, & e*. ...	.....	7,870 5 9	.....	

The trees enumerated in the above list have been chiefly removed from those parts of the forests which are not yet worked by departmental agency.

63. So far we have worked, though according to an improved system, still not guided by a regular working plan. The reason for this is that it was necessary to obtain some idea of the quantity of material required. Now that this has been gained to some extent, we must set to work to survey and value each range and prepare working plans, to insure a supply of the necessary material not only for to-day and to-morrow, but also for those who will come after us. The demarcation will be completed by the end of December of the current year, and there is no reason why a working plan of the Goompahar range should not be prepared by April next.

4.—Financial Results.

64. The actuals of the year, arranged under main heads, are the following :—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1. Departmental timber operations	41,769 15 2	29,313 9 6	12,456 5 8	.....
2. Other revenue	8,020 6 10	3,939 14 10	4,080 5 0	.....
3. Formation, protection, and improvement of forests	.....	3,438 5 8	.....	3,438 5 8
Total ..	49,790 6 0	36,691 14 0	13,098 8 0	.....

It has been shown above that the area of the division is equal to 16,917 acres. As the surplus amounts to Rs. 13,098-8, it follows that the division has yielded a cash surplus of 12 annas and 5 pies per acre of forest, or about Rs. 500 per square mile, which must be considered as highly satisfactory.

B—TEESTA DIVISION.

1.—Area and Boundaries.

65. (*a.*) *Area.*—The Teesta division, as at present constituted, comprises the forests on the south bank of the Rungit river, those on both banks of the Teesta river, except the Sibhok-Raing block, and the forest in Dumsong. The division is as yet in formation, but it has been decided now what areas are to be declared reserved forests.

66. On the 31st March 1878 the following areas had been actually erserved:—

The Rungit-Teesta Range.

	Acres.	Roods.	Poles.
The Rungit block area	402	2	32
„ Rungnoo „	166	...	12
„ Sumbong „	1,740	2	29
„ Poshok „	1,011	...	...
„ Mungwa and Teesta block	1,071	...	...
„ Seem Jhora „	342	...	...
Total ...	4,733	2	3

The Kalingpoong Range.

	Acres.	
The Dumsong block area	14,640	
„ Kalingpoong „	3,180	
„ Rinkinpoong „	4,170	
„ Tunang „	966	(estimated).
„ Nuzzeokh „	1,786	„
Total ...	24,742	

The Laba Range.

	Acres.	
The Mayrong block area	2,900	
„ Payong „	470	
„ Khumpung „	3,580	(estimated).
„ Loolagaon „	2,703	„
Total ...	9,653	

Total area reserved = 39,129 = 61 square miles.

These data show 4 square miles more than have been entered in Form 45 attached to this report. The areas given in the latter form are those originally estimated, whereas the area of certain blocks has been corrected since they have been demarcated, hence the difference. The Conservator considered it advisable not to alter the figures in Form 45 until all the blocks have been demarcated and their boundaries surveyed.

67. In addition to the above, it has been decided to add the following areas to the reserves:—

The Laba Range—continued.

	Acres, estimated.
The Rushett block area	5,000
„ Jeet „	7,000
Total ...	12,000
The Teesta-Chel Range	35,000
„ *Dahng* „	43,000
„ *Juldaka* „	34,000
Total ...	124,000 = 194 square miles.

Thus the total area of the division will amount to 163,129 acres, equal to 255 square miles.

68. When the demarcation of these areas has been completed, it will be necessary to divide the division into two, namely—

I.—The Teesta Division.

Comprising—

		Acres.
1.	The Rangit-Teesta Range area	4,734
2.	„ Kalingpoong „	24,742
3.	„ Teesta-Chel „	35,000
	Total ...	64,476

to which should be added from the Kurseong division—

4.	The Sibhok-Raing Range	20,000
	Total ...	84,476 acres = 132 square miles.

II.—The Daling Division.

Comprising—

1.	The Laba Range area	21,653
2.	„ Daling „	43,000
3.	„ Juldaka „	34,000
	Total ...	98,653 acres = 154 ditto.

69. These areas contain all the different classes of forest found in the Darjeeling district, from the sâl and savanah tracts of the Terai, through the lower hill sâl forest and evergreen forests containing India rubber trees, to the middle hill forests of toon, chestnuts, and chilauni, on to the oaks, magnolias, and chestnuts, and to the rhododendron forests about Recheela and Satheela at an elevation of 10,364 feet above the sea. Further investigation will be necessary before a detailed classification can be attempted.

70. (*b.*) *Demarcation.*—On the 1st April 1877 the following blocks had been demarcated:—

1. The Rinkinpoong block.
2. „ Kalingpoong „
3. „ Dumsong „
4. „ Payong „
5. „ Magrong „
6. „ Khumpung „

During the year under review the demarcation has been continued, but various circumstances prevented such progress being made as the Conservator had hoped. During the first part of the season the Assistant Commissioner, who was to have accompanied the Assistant Conservator, fell ill, and had to leave. Then, when another officer had arrived in his place, Mr. Bonham Carter, Assistant Conservator of Forests, fell ill, and died on the 26th January 1878. Mr. W. Johnston, Assistant Conservator, took his place early in February 1878, but he had to devote the remainder of the season to the selection of further reserves. Thus only two blocks have been demarcated during the year, namely—

1. The Loolagaon block.
2. „ Tunang „

The only block reserved, but not demarcated, is the Nuzzookh block.

71. The proposed reserves have been gazetted under section 4 of the Forest Act, and it is expected that the final notification under section 19 of the Act will be published early in the next cold season. Arrangements have been made to employ two officers on the demarcation, so that all boundary marks should be erected by the end of the present official year.

2.—Protection and Improvement.

72. It need scarcely be mentioned that not much can be done under this head until the demarcation has been completed. We have entertained one forester and nine watchers to look after the demarcated blocks, but this establishment will have to be considerably increased as demarcation progresses. For the whole area, including the range to be transferred from the Kurseong division, not less than seven rangers and foresters with a corresponding number of watchers will be required.

There have been no prosecutions for breaches of the forest rules, nor have special reproductive measures been started as yet.

3.—Yield and Working.

73. No trees have been cut by departmental agency during the year, but a number of sâl logs and narrow gauge sâl sleepers, derived from trees cut in previous years, have been brought to depôt. The logs in question were all lying on the slopes overhanging the Teesta. They were pushed by coolies to the water's edge, there put into cradles of bamboos, thrown into the river, and caught again at Sibhok, where the Teesta emerges from the hills. The current in the Teesta is very swift, and the bed is full of rapids and isolated rocks, to remove which would cost more money than we can lay out. Hence the bringing out of timber like sâl, which does not float, is a very difficult and expensive operation, besides a considerable quantity of timber is lost in transit. This would be avoided to a large extent if the timber could be taken down in rafts. Several of the officers (specially Messrs. Fuchs and Carter) have offered to stand on the raft and go down the stream on it, but it has not been possible to persuade the workmen to make the attempt.

74. The following quantities of timber have been brought to depôt during the year—

Description of timber.	Pieces.	Cubic feet.
Brought to depôt.		
Sâl logs	85	3,281
Narrow gauge sâl sleepers	1,278	1,705
Total ...	1,363	4,986
Transferred from one depôt to another.		
Sâl logs	45	983
Narrow gauge sâl sleepers	872	1,163
Total ...	917	2,146
Grand Total ...	2,280	7,132

During these operations we lost 26 logs and 138 sleepers, some of which will, no doubt, be found again. 84 logs, containing 5,211 cubic feet, were cut up into sleepers.

75. The sales from depôts during the year comprise—

	Pieces.	Cubic feet
Sâl logs	2	156
Narrow gauge sâl sleepers	546	728
Total ...	548	884

76. The produce removed from the forests by purchasers is exhibited below:—

Description.	Number of trees or quantity.	Amount realized and due.	Rate.	Remarks.
		Rs. A. P.	Rs. A. P.	
Toon trees	9	225 0 0	25 0 0	
Total of II*a*. ...	9	225 0 0	.....	
Bamboos.				
Bamboos	7,693	76 15 2	1 0 0	Per 100.
Total of II*c*. ...	7,693	76 15 2	.....	
Grasing and fodder grass.				
Buffaloes	32	16 0 0	0 8 0	
	25	4 11 0	0 3 0	
Bullocks	30	14 14 6	0 8 0	
	403	50 6 0	0 3 0	
Sheep	20	1 4 0	0 1 0	
Tickets for bamboo leaves	40	20 0 0	0 8 0	
Fodder grass	200 bundles.	2 1 0	1 0 0	Per 100 bundles.
Total of II*d*. ...	.....	109 4 6	.....	
Other minor produce.				
Thatch grass	2,300 bundles.	22 6 4	1 0 0	Per 100
Total of II*e*. ...	.....	22 6 4	.....	
Grand total of II*a*, *c*, *d*, and *e* ...	.....	433 10 0	.....	

77. The sales are small as yet, but they will now increase rapidly, chiefly owing to the extension of tea cultivation along the southern edge of the Dumsong sub-division. These plantations have very little material on their own estates, and they must rely on the reserves for their timber, firewood, and charcoal.

4.—Financial Results.

78. This is not a paying division as yet. The actuals stand thus:—

		Rs. A. P.	Rs. A. P.
Receipts			1,945 10
Expenditure	A	4,380 8 4	
	B	5,807 15 1	
			10,188 7 5
Deficit ...			8,242 13 5

The Rangit-Teesta, Teesta-Chel, and part of the Kalingpoong, Daling, and Juldaka ranges, will pay well enough shortly; but the Laba range, and the upper parts of the Kalingpoong, Daling, and Juldaka ranges, will not yield much revenue for years to come, these areas having been reserved chiefly for climatic reason. On the whole, the Conservator thinks the deficit ought to disappear after another year or two.

C.—KURSEONG DIVISION.

1.—Area and Boundaries.

79. (*b*.) *Area.*—The Kurseong division, forming part of the Darjeeling district, comprises the forest reserves situated on the outer hills from Kurseong downwards and in the adjoining Terai. The areas standing in the name

of the Forest Department are entered in the Deputy Commissioner's office as follows, arranged according the present ranges :—

I.—Balasun Range.

In the Hills.

		Area, Acres.	Roods.	Poles.
(1)	The Merig block	1,933	3	6
(2)	„ Mujooa „	1,112	0	0
(3)	„ Phoogurhee block	514	2	0
(4)	„ Mendook hill „	967	1	25
(5)	„ Mechi „	290	0	0
(6)	„ Lohagurhee „	584	0	0
(7)	„ Munjha (Chenga) block	1,011	2	26
(8)	„ Balasun block	1,544	2	15
	Total ...	7,957	3	32

In the Terai.

		Area. Acres.
(9)	The Mechi block	673·40
(10)	Ditto	298·00
(11)	Ditto	215·60
(12)	Ditto	52·20
(13)	„ Munjha river	228·00
(14)	„ Balasun block	965·93
(15)	Ditto	82·00
(16)	Ditto	280·00
(17)	„ Terihana block	399·00
(18)	„ Dulka Jhar „	2610·08
(19)	„ Ditto	668·46
(20)	„ Ditto	122·25
(21)	„ Ditto	153·00
(22)	„ Ditto	228·28
(23)	„ Ditto	389·60
(24)	„ Bagdogra Jhar block	887·92
	Total ...	8253·72
	Total of Range ...	16,212

II.—Bamunpokri Range.

		Area. A.	R.	P.
	In the Hills.			
(1)	The Bamunpokri block	1,372	2	6
(2)	„ Lama Ghumba (Forest Herrold) ...	493	3	28
	In the Terai.			
(3)	The Rukti block	195·25		
	Total of Range ...	2,061	acres.	

III.—The Shukna Range.

		A.	R.	P.
	In the Hills.			
(1)	The Goomti block	408	0	0
(2)	„ Major Sherwill's „	1,011	0	0
(3)	„ Poondi Hills „	2,044	2	0
(4)	„ Shukna „	1,049	2	4
(5)	„ Latpanchor „	5,492	2	21
(6)	„ Sibhok „ ...	8,779	2	16
		18,785	1	1

In the Terai.

(7)	The Rangamatee block	... ...	1,147·04
(8)	„ Rungdong „	... ...	700·00
(9)	„ Noonamattia „	... ...	428·00
(10)	„ Moorgaon Jhar „	... ...	2,375·38
(11)	„ Mahanuddy „	... ...	114
(12)	„ Champasari Jhar „	... ...	2,732·56
(13)	„ Ditto „	... ...	124
(14)	„ Ditto „	... ...	29
(15)	„ Ditto „	... ...	21
(16)	„ Ditto „	... ...	69
(17)	„ Sibhok (Chumpasari Jhar)	... ...	4,734·41
			12,474·39
		Total of Range ...	31,260 acres.
		Grand Total of Division ...	49,533 acres.

80. In addition to the above the department holds the following areas:—

	Area Acres.
Received from the Deputy Commissioner, Darjeeling.	
At Rungamatee (Shukna Range)	30
Received from Superintendent, Cinchona Department.	
Between Sitong and Teesta, about	12,000
Bought up to 31st March 1878.	
Chowatee Gram (Dulka Jhar, Balasun range)	78·5
Chandraie Bhita (Champasari Jhar, Shukna range) ...	57·5
Babooni Bhita (Champasari Jhar, Shukna range)	30
Total ...	12,196

81. Since the close of the year we have bought from Mr. W. Lloyd, of Darjeeling, an area of 5,795 acres 3 roods and 6 poles, all situated in the Terai portion of the Balasun range and consisting of the following blocks:—

		Area. A.	R.	P.	A.	R.	P.
	Tukria Jhar Block.						
(1)	The Tukria Jhar	1,079	1	12			
(2)	„ Shirubhita	134	2	0			
(3)	„ Ditto	81	0	0			
(4)	„ Tepua	69	0	0			
					1,363	3	12
	The Mechi Block.						
(5)	The Muller's land	319	2	32			
(6)	„ Jungla	68	0	0			
(7)	„ Ditto	17	0	0			
(8)	„ Nipunia	111	0	0			
(9)	„ Ditto	10	0	0			
(10)	„ Chiprudas	191	1	3			
(11)	„ Kholabari	152	0	0			
(12)	„ Ditto	84	3	8			
(13)	„ Ditto	39	0	0			
(14)	„ Tetli	56	0	0			
(15)	„ Ditto	117	1	17			
(16)	„ Pahari	32	0	0			
(17)	„ Kootha chat	20	3	30			
(18)	„ Boragunjo	62	0	0			
(19)	„ Ditto	32	0	0			
(20)	„ Saty babut	62	0	0			
					1,375	0	10

	A.	R.	P.	A.	R.	P.
Gurabadi (Mechi).						
(21) The Gurabadi	73	0	0	73	0	0
Moolta (Dulka Jhar).						
(22) The Moolta	587	3	16	587	3	16
Balasun Block.						
(23) The Karimbux Chat	570	0	1			
(24) „ Karimbux	76	0	0			
(25) „ Jeetun Singh Chat	304	0	0			
(26) „ Pranchund Chat	617	0	0			
(27) „ Pranchund	73	0	0			
(28) „ Byratisal Chat	98	3	30			
(29) „ Bengdubi Chat	18	0	0			
(30) „ Henglal Chat	228	0	17			
(31) „ Henglal Bydar	411	0	0	2,396	0	8
Total				5,795	3	6

This brings the total area up to 67,525 acres, equal to 106 square miles.

82. Steps have been taken to acquire the following blocks, which are surrounded by reserved forests :—

			Area. Acres.
(1) Kishabari	(Dulka Jhar)	... ...	67·25
(2) Major Wardropers	ditto	... ...	131
(3) Kanoo Choudrie's Bhita	ditto	... ...	68
(4) Jeetun Sing's Jote	ditto	... ...	75
(5) Sham Lal's Jote	ditto	... ...	84
(6) Ditto	ditto	... ...	74
(7) Ragho	ditto	... ...	76·25
(8) Shilibhita (Shibok)	ditto	... ...	27
		Total ...	602·5

This area, added to that given above, would raise the total to 68,127 acres. On the other hand the Teesta-Raing range, 20,000 acres, will shortly go to the Teesta division, leaving to the Kurseong division an area of 48,127 acres, equal to 75 square miles.

83. To recapitulate, we shall have the following ranges :—

	Area. Acres
I.—The Balasun range, ...	22,662
II.— „ Bamunpokri range	2,061
III.— „ Shukna „	23,404
Total of division ...	48,127

Probably both the Balasun and Shukna ranges will have to be divided hereafter into two ranges each.

84. The areas are covered with forest of the different kinds appearing in the Darjeeling district, except oak and rhododendron forests. The prevailing forest in the Terai is the sâl forest interrupted by Savannah tracts. There is also a good deal of khair and sissu forest on the Mechi, Balasun, Rukti, Mahanuddy, and Sibhok rivers. Sâl is found on the lower hills alternating with evergreen and mixed forest. Around Sittong a good deal of middle hill forest, consisting chiefly of chilauni, toon, and chestnuts is found.

85. (*b.*) *Demarcation.*—Most of the forests had been demarcated on the 1st April 1877. During the year under review the following boundaries have been laid down :—

(1) The Balasun forest.
(2) ,, Rukti ,,
(3) The boundary between the Government forest above Shukna and the Nurbong tea estate.
(4) The new boundary between the Chenga (Munjha) forest and the adjoining estates. This boundary has been simplified by exchanges, so that it now follows a road.

There remain now to be demarcated :—

(1) The Merig forest,
(2) ,, Mujooa ,,
(3) Part of the Mechi forest, and
(4) Areas lately purchased from Mr. Lloyd and others. Thus the demarcation should be complete throughout the division by the end of March 1879.

2.—Protection and Improvement.

86 (*a.*) *Establishments.*—Hitherto we have entertained the following forest establishment :—

Three foresters and 17 watchers.

We shall now require two rangers, four foresters, and an adequate number of watchers. The Balasun and Shukna ranges require one ranger and one forester each, whereas the Bamunpokri range can be managed by one forester. Of all divisions in Bengal, Kurseong is the most difficult to supply with a subordinate forest establishment, because the Terai, as well as the lower hills, are exceedingly unhealthy, and the men are constantly falling sick. During the last two years every forester in the division had to go on sick leave during the rainy season. The only plan to retain the men, which the Conservator can suggest, is to build healthy houses in elevated positions for the rangers and foresters, and a commencement will be made in this direction during the coming cold season.

87. (*b.*) *Breaches of Forest Rules.*—We have instituted three prosecutions, involving five persons, during the year. The cases referred to unauthorized felling of trees.

88. (*c.*) *Roads and bridges*—(1) The existing roads have been cleared and the necessary repairs done. Temporary carting tracts were made at the Gulma, Chuklong, Ruhoni, and Goroomara rivers for the extraction of logs and sleepers.

(2) The traces in the Dulka Jhar have been cleared, and the two which were unfinished completed, so that the forest has now been divided into a number of suitable blocks.
(3) A timber road from the Dulka Jhar to the Balasun-Naksalbaree road has been constructed during the year. Its length is about one mile, comprising three substantial stone bridges.
(4) A bridle path has been made in the Bamunpokri forest leading from the rest house westwards along the line of the firepath to join the Punkabari road at the Rungchoongjhora; length of road two and half miles.
(5) The Mahanuddy Bherik bridle path has been repaired along its whole length, fifteen miles.
(6) Of the Sibhok Latpanchor bridle path three miles were made in 1876-77. During the year under review an additional length of seven miles has been constructed, so that now only three miles remain to be done.
(7) A bridle path, about two and a half miles long, up the Chuklong ridge was made, to serve as an inspection road and for the extraction of sleepers. It is proposed to continue this road until it meets the Latpanchor road.
(8) To enable a proper control over the floating in the Teesta to be exercised, the lower part of the Teesta valley road was made passable for nearly ten miles.

89. (*d.*) *Buildings.*—The works under this head were all of a minor description. We constructed—

1. A hut for the clerk at Bamunpokri.
2. A forester's hut at Bamunpokri.
3. Repairs on the Bamunpokri rest-house and out-offices.
4. A new godown at Bamunpokri.
5. Repairs of elephant shed at Shukna.
6. An inspection hut at Champasari.

As already mentioned above, we must during the current year build at least one decent ranger's house, and, if possible, two.

90. (*e.*) *Reproductive Measures.*—So far planting has been carried on at Bamunpokri only. Here we had 155 acres planted on the 31st March 1877. During the year under review we have added 60 acres, thus bringing the planted area up to 215 acres, which is the extent of block I. The area is divided into seven compartments, which are stocked in different ways. Originally only pure teak was planted, but subsequently we have added toon, sâl, sissu, and a few plants of mahogany. It is of course too early yet to judge of the probable results, but so far teak has not done badly. The oldest trees are now ten years old, but it is impossible to say how they will thrive five years hence. Toon, sissu, and sâl, are indigenous. Of the mahogany seedlings only three are now alive. These were planted close to the forester's house in 1872, and they are now about 15 feet high, and 3 inches in diameter at the lower part of the stem. Of the mahogany seedlings planted out in the plantation, none are alive now.

91. Block I having been stocked with teak intermixed with other kinds of trees, it is not intended to make further extensions, but to see and watch how the teak will thrive.

92. The total expenditure has been Rs. 28,117-12-10 up to date, and it will probably reach the sum of Rs. 35,000 by 1880, after which the plantation ought to be self-supporting. Thus the total expenditure will come to about Rs. 160 per acre. As the plantation is entirely of an experimental character, and had to be made in a locality where the tall grasses grow exceedingly rapidly, so that they have to be cleared away five and six times in one season, the expenditure is perhaps not too high. Fortunately it is so situated that every stick derived from it, beginning with the earliest thinnings, can be sold, either as timber, firewood, or charcoal, so that the outlay is sure to be remunerative.

93. The little India rubber plantation is thriving very well. The plants are now three years old, and many of them have reached a height of from seven to eight feet.

94. The experimental bamboo plantation is as yet unfit for the desired experiments regarding the yield of paper-stock, and the Conservator has no doubt that by the time it is fit for it the whole idea will have been abandoned as impracticable.

95. Now that our hands have become free, no further extensions of plantations consisting of exotic trees being intended, we shall commence to reproduce some of the denuded areas by natural means, assisted by the dibbling in of indigenous seeds, as sâl and sissu, according to the nature of the different localities.

96. (*f.*) *Protection from Fire.*—We attempted to keep fire out of the following two blocks.

		Area.
(1) The Sibhok forest	... ...	1,554 acres.
(2) „ Bamunpokri ditto	... ...	1,373 „

The former of these was burnt, the fire having been carried over the fire-path by a strong wind, while the staff of coolies available for such an emergency was quite inadequate to stop it. The Sibhok forest is separated from the populated parts of the country by the Byeuntpore forest, so that it is impossible to obtain the necessary labour when the fire has once crossed the line. Whether it will ever be practicable to protect this forest is doubtful, unless the Byeuntpore forest can be bought by Government.

97. At Bamunpokri we were more furtunate, that forest having now been successfully protected during the last two years, of which one was favorable, and the other highly unfavorable for fire protection. During the year under review fires were very prevailing, which extended over extensive areas owing to the exceptionally strong winds blowing at the time. At Bamunpokri one of these fires was carried up an almost perpendicular precipice of at least 100 feet high, and it very nearly spread in the plantation. Owing to the regular system of patrolling and the large staff of coolies always on hand, the fire was put out before it could do any damage.

98. The expenditure of protecting Bamunpokri from fire during the last two years stands thus :—

		Rs.	A.	P.	Rs.	A.	P.	
1876-77, Expenditure	...	1.212	14	0	0	14	2	per acre.
1877-78, Ditto	...	925	15	0	0	10	9	„
Average per year	...	...	..		0	12	6	

This outlay is of course very heavy, and it is to be hoped that it will be possible to reduce the expenditure again during this year. At any rate, having spent some Rs. 30,000 on planting in the area, fire must be kept out. The main difficulty in the Darjeeling Terai lies at present in the presence of many thousands of Nepalese coolies employed on the tea plantations which surround Bamunpokri. These men will set every corner of waste jungle on fire, and it is very difficult to keep them out of the protected area. However, the jungle outside the reserves is becoming less every year, so that the danger should gradually be reduced in the same degree.

3.—Yield and Working.

99. We have not yet had time to collect all the data necessary for the preparation of working plans, but as soon as the demarcation has been completed we must set to work in this direction.

100. During the year under review we had to supply considerable quantities of timber for several urgent public works, as the railway extension from Julpigoree to Silligoree, and the constructions of bridges on the Ganges Darjeeling Cart Road. Adding to this the rapidly increasing local demand, it has come to pass that we have taken more sâl timber out of the forests than a rational system of working would justify. The question to be decided was whether to delay these works or to overwork the forests for once, a question which is generally decided against the forests. Endeavours should, however, be made to reduce the cutting of sâl somewhat, until the extra outturn of 1877-78 has been made good again. No sâl trees have been cut in the plains part of the forests between Shukna and Sibhok, the sleepers having all been derived from the hills, whence it would have been very difficult to bring the timber out in the log.

101. We have cut the following green trees by Government agency, the details of which will be found in Form 53 :—

Green Sâl trees	...	...	...	1,125
„ Hurra „	...	...	...	4
„ Jamun „	...	...	...	3
„ Tatri „	...	...	...	3
„ Gamhari trees	...	...	...	4
„ Kunkur „	...	...	...	6
„ Teak „	...	...	...	8
		Total	...	1,153

The sâl and hurra trees were cut up into sleepers and logs, and the others into scantlings for the Alipore Jail.

Besides the above, 709 fallen and dry trees were cut up and brought out in the shape of Kala Khambas, partly during the year under review and partly since its close.

102. The timber brought to depôt is shown in the subjoined statement:—

Description of timber.	Pieces.		Cubic feet.	
Logs.—Sâl	444		14,911	
Sissu	10		166	
		454		15,077
Sleepers.—Bed plates ...	23		115	
Sleepers, broad gauge ...	153		494	
„ narrow „ ...	29,758		39,677	
		29,934		40,286
Other Scantlings.—Sâl end, &c. ...	160			
		160		
Kala Khambas	384			
		384		55,363
Total		30,932		
Add transferred from the Sibhok to the Julpigoree depôt.				
Sâl logs ...	20		650	
Sleepers, narraw gauge	741		988	
Kala Khambas ...	69		.....	
				1,638
		830		
GRAND TOTAL		31,762		57,001

Besides the above, 1,028 maunds of firewood and 20 maunds of charcoal were brought to depôt.

103. The following quantities of material were sold from Government depôts during the year:—

DESCRIPTION OF TIMBER.	Pieces.		Cubic feet.	
Logs.—Sâl	604		19,964	
Sissu	387		2,535	
Khair	2		14	
		993		22,513
Sleepers.—Bed plates	23		115	
Sleepers, broad gauge ...	146		469	
„ narrow „ ...	32,366		43,154	
		32,535		43,738
Other scantlings.—Sâl ends, &c. ...	132			
		132		
Kala khambas	243			
		243		
Total		33,903		66,251

We also sold 2,814 maunds of firewood and 20 maunds of charcoal from the depôts.

104. The receipts at depôts and the disposals compare thus—

	Pieces.	Cubic feet.
Receipts at depôts	30,932	55,363
Sales	33,903	66,251
Reduction of stock in depôts	2,971	10,888

105. Financially the departmental timber operations show the following results:—

	Rs.	A.	P.
Average amount realized per cubic foot	1	3	9
„ expenditure per cubic foot, including share of establishment, elephants, tools, &c.	0	7	11
Surplus per cubic foot ...	0	11	10

This high surplus per cubic foot is due to the large number of sleepers made over to the Northern Bengal State Railway, and to the small expenditure incurred in bringing the logs to depôt, which were sold to the Executive Engineer, Ganges and Darjeeling Cart Road, and which had not to be carted, but were taken over, where the elephants deposited them on the carting road.

106. The subjoined statement exhibits the quantities of produce removed from the forests by purchasers :—

Description.	Number.	Amount realized.	Rate.	Remarks.
Timber.		Rs.	Rs.	
Champ trees	7	175 0 0	25 0 0	
Sál "	12	240 0 0	20 0 0	
Do. "	192	2,880 0 0	15 0 0	
Pipli	1	15 0 0	15 0 0	
Chilauni	84	840 0 0	10 0 0	
Lampattia	46	460 0 0	10 0 0	
Saj	13	130 0 0	10 0 0	
Seemul	81	810 0 0	10 0 0	
Do.	1	7 0 0	7 0 0	
Sissu	51	510 0 0	10 0 0	
Gambari	1	10 0 0	10 0 0	
Goguldhup	12	120 0 0	10 0 0	
Panisaj	6	60 0 0	10 0 0	
Nurgue	1	10 0 0	10 0 0	
Kaddam	2	20 0 0	10 0 0	
Mynakut	1	10 0 0	10 0 0	
Lutter	3	30 0 0	10 0 0	
Kurrong	2	20 0 0	10 0 0	
Bahua	1	10 0 0	10 0 0	
Sida	4	40 0 0	10 0 0	
Dry trees.				
Dry saj	42 c. ft.	2 10 0	0 1 0	per cubic f
Kala khambas	7	35 0 0	5 0 0	
Ditto	1	4 0 0	4 0 0	
Ditto	4	12 0 6	3 0 0	
Ditto	7	14 0 0	2 0 0	
Ditto	4	7 0 0	1 12 0	
Ditto	41	41 0 0	1 0 0	
Ditto	211	105 8 0	0 8 0	
Building posts	50	6 4 0	0 2 0	
Ditto	Unknown	7 8 6	.....	
Total of Timber ...	.....	6,631 14 6	.....	
Firewood	91,126 mds.	4,556 5 1	5 0 0	per 100 maunds.
Ditto	587	17 13 6	3 0 0	ditto.
Ditto	911 cart loads	455 8 0	0 8 0	per cart load.
Ditto	115 ft.	115 0 0	1 0 0	per foot.
Total ...	.....	5,144 10 7	.....	
Bamboos	85,163	851 11 6	1 0 0	per 100.
Total ...	.....	851 11 6	.....	
Grasing.				
Buffaloes	4,370	819 6 0	0 3 0	each.
Cows and ponies	2,259	282 6 0	0 2 0	do.
Goats	87	5 7 0	0 1 0	do.
Tickets for fodder	216	108 0 0	0 8 0	do.
Total ...	.....	1,215 3 0	.....	
Other minor produce.				
Thatching grass	19,477 bundles	304 5 3	0 0 3	per bundle.
Canes	1 bundle	0 3 6	0 3 6	ditto.
Do.	452 bundles	113 0 0	0 4 0	ditto.
Do.	1 ticket	8 0 0	8 0 0	per ticket.
Do.	9 ditto	54 0 0	6 0 0	ditto.
Total ...	.....	479 8 7	.....	
Drift.				
Lampattia	1,696·5 c. ft.	106 0 6	0 1 0	per cubic foot.
Toon	178·5 ditto	33 7 6	0 3 0	ditto.
Champ	31 ditto	7 11 0	0 3 0	ditto.
Dubdubia	11 ditto	0 11 0	0 1 0	ditto.
Sissu	330·5 ditto	20 10 6	0 1 0	ditto.
Chilauni	44 ditto	2 12 0	0 1 0	ditto.
Hurra	120 ditto	7 8 0	0 1 0	ditto.
Firewood	100 mds.	3 0 0	3 0 0	per 100 maunds.
Do.	30 ditto	1 8 0	5 0 0	ditto.
Total ...	.....	183 4 6	.....	
Total revenue under II*a*, *b*, *c*, *d*, and *e* ...	.....	14,506 4 10	.....	

It will be observed that a large amount of firewood has been sold during the year, while the sales of it a few years ago were *nil*, or almost so. This rapid increase is due to the reduction of wood on the tea estates in the Terai, and the Conservator has no doubt that a few years hence the sales of firewood will be counted by lakhs of maunds.

4.—Financial Results.

107. The following figures exhibit the actuals of the year, arranged according to main heads:—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1. Departmental timber operations	82,713 9 7	27,405 5 1	55,308 4 6	.....
2. Other revenue	15,737 0 4	4,757 13 11	10,979 2 9	.....
3. Formation, protection, and improvement of forests	.....	13,766 15 5	.....	13,766 15 5
Total ...	98,450 9 11	45,930 2 5	52,520 7 6	.....

The area of the division from which this revenue has been derived comprises 61,729 acres, consequently the net surplus per acre amounts to 13 annas 7 pie, or Rs. 543 per square mile.

D.—JULPIGOREE DIVISION.

1.—Area and Boundaries.

108. (*a.*) *Area.*—The Julpigoree division consists of the forestssituated in the western part of the Dooars, namely between the rivers Teesta and Tursa. On the 1st of April 1877 the following areas had been gazetted as reserves:—

		Area. Square miles.
(1)	The Apalchand forest	26
(2)	„ Tundu „	73
(3)	„ Dainah „	24
(4)	„ Muraghat „	17
	Total ...	140

109. During the year under review we have added—

(5)	The Dulgaon forest	2½
(6)	„ Dumchi „	3
(7)	„ Khairbari „	6½
	Total ...	12
	Grand Total ...	152

The Conservator of Forests, on going over the new areas in March last, found that the northern part of the Khairbari forest contains more cultivation than he was aware. On the other hand, he found several other blocks which should be reserved. Under these circumstances he proposed that the Khairbari forest should be reduced to three square miles, and that the following blocks should be reserved:—

		Area. Square miles.
(1)	The Rehtee block	5
(2)	An addition to the Dumdree block	2½
(3)	The Teetee block	13
	Total ...	20½

The necessary proposals are now before the Commissioner of the Division, and if they receive the sanction of Government the area will be brought up to 169 square miles.

110. As the areas gazetted during the year are to be altered in two cases out of three, it will be advisable to give the boundaries in next year's report. The notification is dated the 9th July 1877, and will be found at page 819 of the *Calcutta Gazette* of the 18th July 1877.

111.. Of the additional areas, the Dulgaon and Dumchi reserves contain sâl and savanah forest, and the Khairbari reserve khair and sissu forest.

112. (*b.*) *Demarcation.*—On the 1st April 1877 the following areas had been demarcated :—

(1) Apalchand reserve, east boundary, (not west boundary, as erroneously stated in last year's report).
(2) The Tundu reserve, south boundary and part of west boundary.
(3) Muraghat reserve, completed.

113. During the year under review we have demarcated :—

(1)	The Apalchand reserve, south, west, and north boundary ; length demarcated	14	miles.
(2)	Tundu reserve, part of west boundary and east boundary	12	„
(3)	Dainah reserve, east, south, and west boundary ...	11	„
	Total length demarcated during the year ...	37	„

114. The work remaining to be done may be thus enumerated : —

(1)	The boundary between the Apalchand reserve and Pataroo's jote, situated between the Teesta and Geelajhora	Length of boundary about	¼	mile.
(2)	The boundary between the Tundu reserve and Borodighi jote	„	¾	„
(3)	The Dainah reserve, north boundary	„	7	miles.
(4)	„ Dulgaon reserve	„	2	„
(5)	Dumchi	„	5½	„
(6)	Khairbari	„	½	mile.
	Total ...	„	16	miles.

and if the Conservator's proposals mentioned above are sanctioned—

(7)	The Rehtee block	Length of boundary about	9	miles.
(8)	„ Teetee „	„ „	14	„
	GRAND TOTAL ...	„ „	39	„

so that the demarcation should be completed by April 1879.

2.—PROTECTION AND IMPROVEMENT.

115. As we are as yet busy with the demarcation, little can be recorded under this head.

116. (*a.*) *Establishments.*—We have hitherto entertained a forest establishment of four foresters and 12 watchers. Ultimately a much larger staff will be required, and for the present it should consist of one ranger and four foresters, with a sufficient number of watchers. The charges should be the following :—

	Area. Square miles.	Total square miles.
I.—The Apalchand Range.		
The Apalchand forest	26	
	—	26
II.—The Tundu Range.		
The Tundu forest	73	
	—	73
III.—The Muraghat Range.		
1. The Dainah forest	24	
2. „ Muraghat „	17	
3. „ Rehtee „	5	
	—	46
IV.—The Falakata Range.		
1. The Dulgaon forest	2½	
2. „ Dumchi „	5½	
3. „ Khairbari „	3	
4. „ Teetee „	13	
	—	24
Total ...	...	169

One forester will always be required for the Julpigoree depôt.

117. (*b.*) *Breaches of Forest Rules.*—We instituted during the year one case involving eight persons for unlawful appropriation of Government timber, but the evidence was not considered sufficient to convict the men.

118. (*c.*) *Reproductive Measures.*—All that has been done as yet are two small experimental plantations of teak, one at Ramshaie Hât in the Tundu reserve, and the other near Falakata. Both were visited by the Conservator during the year. It has been mentioned in previous reports that the little plantation at Ramshaie Hât, which was made in 1869, had been abandoned, as fires had repeatedly swept over it and destroyed all chance of the trees coming to anything (see paragraph 157 of the report for 1872-73). Consequently no particular care was bestowed upon it. The Conservator, on visiting the place in March last, was surprised to find some 500 young trees alive, which had held their own against the high grass, and the largest tree measured 22 inches in girth at three feet from the ground, having reached a height of about 40 feet; others were small and weedy.

119. The teak trees remaining in the plantation near Falakata show that the locality is not suited to the growth of the species, the young trees being short in the stem, and the latter bottle-shaped near the ground.

120. (*d.*) *Protection from Fire.*—The Muraghat reserve, with an area of 10,900 acres, was successfully protected in 1876-77. Attempts were made to protect it again in 1877-78, but out of the total area 5,900 acres were burnt by two fires. The first occurred near the north boundary, before the protecting belt had been quite cleared. It spread over about 200 acres, and was therefore of little importance. The second fire seems to have been lighted inside the reserve, and it spread over an area of over 5,000 acres. The only explanation given is that it must have been lighted purposely and not accidentally, as no roads lead through the reserve. The incendiaries were not found out.

3.—Yield and Working.

121. When the reserves were first taken up, the Conservator satisfied himself that they contained very little mature timber, all big trees having been removed previous to British rule, owing to the favorable position of the forests with regard to export. Hence, it had been decided not to work these reserves for some 25 or 30 years except for dry and fallen trees. The great demand at Julpigoree and other places situated on the Teesta, and the construction of the Northern Bengal State Railway, forced us to suspend the rest temporarily. Thus we cut 405 sâl trees in the Apalchand reserve during 1876-77, and again during the year under review we have cut by departmental agency—

	Sâl trees.
In the Tundu reserve	320
„ Muraghat open forest	100
Total ...	420

122. These trees were partly cut into logs and partly into sleepers and other scantlings, which were dragged, carted, and floated,—those from the Tundu reserve to the Julpigoree depôt, and those from Muraghat to a depôt situated where the Julpigoree-Alipore road crosses the Doodooa river.

123. The quantities of timber, including drift timber, which reached the depôt during the year are these :—

Description of Timber.	Pieces.		Cubic feet.	Total cubic feet.
Logs—Sâl	331		6,717	
Toon	3		89	
Miscellaneous	2		78	
		336		6,884
Sleepers—Sâl, narrow gauge	3,965		5,287	
		3,965		5,287
Other Scantlings—Slabs, &c.	1,307		.....	
		1,307		.....
Total ...		5,608		12,171

276 of the sâl logs were cut up into sleepers in depôt.

124. The following quantities of timber have have been sold from depôts :—

Description of Timber.	Pieces.	Cubic feet.	Total. Pieces.	Total. Cubic feet.
Logs—Sâl	170	3,290		
Sissu	5	58		
Miscellaneous	1	41		
			176	3,389
Sleepers—Sâl, narrow gauge ...	3,323	4,431	3,323	4,431
Other Scantlings—Slabs, &c. ...	773	...	773	...
			4,272	7,820
Total				

125. It is not intended to cut more green sâl trees if it can possibly be avoided, as no mature trees are left.

126. The material removed from the forest by purchasers is exhibited below :—

Description.	Number of trees.	Amount realized or due. Rs. A. P.	Rate. Rs. A. P.	Remarks.
Sâl	6	90 0 0	15 0 0	
Sida	1	6 0 0	6 0 0	
Seemul...	3	18 0 0	6 0 0	
Ditto	4	20 0 0	5 0 0	
Ditto	2	5 0 0	2 8 0	
Amri	1	6 0 0	6 0 0	
Do.	5	25 0 0	5 0 0	
Phool	4	20 0 0	5 0 0	
Gonsoroi	2	10 0 0	5 0 0	
Koeri	1	5 0 0	5 0 0	
Kadam	1	5 0 0	5 0 0	
Dead trees.				
Kala khambas under 4½ feet girth	145	435 0 0	3 0 0	
Ditto 3 ditto	645	645 0 0	1 0 0	
Ditto 2 ditto	998	499 0 0	0 8 0	
Sissu	2	12 0 0	6 0 0	
Do.	28	84 0 0	3 0 0	
Do.	1	2 0 0	2 0 0	
Do.	35	35 0 0	1 0 0	
Do.	12	6 0 0	0 8 0	
Total ...	.....	1,928 0 0	.....	
Firewood.				
Tickets	3	15 0 0	5 0 0	
Do.	3	9 0 0	3 0 0	
Total ...	.	24 0 0	...	
Bamboos.				
Bamboos	300	3 0 0	1 0 0	Per 100.
Grazing.				
Buffaloes	1,080	67 8 0	0 1 0	
Do.	1,260	236 4 0	0 3 0	
Total ...	.....	303 12 0	.....	
Other minor produce.				
Cane	13 tickets	78 0 0	6 0 0	
Confiscated drift and waif wood.				
Sâl	2	16 0 0	8 0 0	
Sissu	1	3 0 0	3 0 0	
Do.	5	5 0 0	1 0 0	
Toon	1	25 0 0	25 0 0	
Do.	1	22 0 0	22 0 0	
Do.	1	16 0 0	16 0 0	
Do.	1	10 0 0	10 0 0	
Boeri	1	10 4 0	0 4 0	Per c. ft. contains 41 c. ft.
Do.	9	45 0 0	5 0 0	
Panisaj	3	30 0 0	10 0 0	
Sholye	1	5 0 0	5 0 0	
Bhelli	1	5 0 0	5 0 0	
Amri	1	5 0 0	5 0 0	
Jhow	1	5 0 0	5 0 0	
Miscellaneous	4	12 0 0	3 0 0	
Total ...	.....	214 4 0	.....	
Total credited under heads II*a*, *b*., *c*., *d*., *e*, and III	.....	2,551 0 0	.....	

4.—Financial Results.

127. The actuals stand as follow:—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs A. P.	Rs. A P.	Rs. A. P	Rs. A. P.
(1) Departmental timber operations	10,020 12 7	6,716 0 3	3,304 12 4	... ..
(2) Other revenue	2,559 8 0	5,467 2 11	.. ...	2,907 10 11
(3) Formation, protection, and improvement of forests	.. ..	4,362 10 5	...	4,362 10 5
Total ..	12,580 4 7	16,545 13 7	.....	3,965 9 0

Although the timber operations in sâl will be reduced, if not altogether suspended, there are good prospects of the deficit disappearing rapidly, owing to the extension of tea cultivation in the district. Few of the tea plantations contain forest, and by far the greater portion of the timber, firewood, and charcoal required will have to be derived from the reserves.

E.—BUXA DIVISION.

1.—Area and Boundaries.

128 (*a.*) *Area.*—The Buxa division consists of the following five reserves situated between the Tursa and Sunkos rivers in the Western Dooars, Julpigoree district:—

		Area. Square miles.
(1) The Borojhar forest		55
(2) „ Buxa „		144
(3) „ Raidak „		20
(4) „ Dhumpara „		11
(5) „ Bholka „		20
	Total ...	250

No additions have been made during the year, but a block of forest situated between the Alaikuri and Kalajhoras has been noticed, which it is intended to take up as a reserve.

129. (*b.*) *Demarcation.*—The demarcation of all the reserves was completed in 1876-77. During the year under review all the boundaries were cleared. The lengths to be kept clear are these:—

	Miles.
Borojhar reserve, length of boundary	11½
Buxa „	42½
Raidak „	4½
Dhumpara „	5¾
Bholka „	8¼
Total ...	72½

130. The clearing of these boundaries was done by the villagers living in the vicinity, at a cost of about 4 annas per 100 running feet, the boundary road being 10 feet broad. Thus the cost per mile came to about Rs. 13, and the total cost for the 72½ miles to about Rs. 950. The Conservator inspected a good portion of the boundaries in March last, and he was much pleased with the good order in which he found them. The posts, not more than 500 feet apart, are in good order, and all numbered.

2.—Protection and Improvement.

131. (*a.*) *Establishment.*—On the 1st April 1878 we entertained the following forest establishment in the division:—

2 Rangers.
4 Foresters
14 Watchers.

As the intensity of the management progresses, the establishment must be increased. The reserves are divided into three ranges as follow :—

I.—Borojhar Range.

	Square miles.	Square miles.
(1) Borojhar reserve, area	55	
		55
II.—Buxa Range.		
(1) Buxa reserve, area	144	
		144
III.—Huldeebaree Range.		
(1) Raidak reserve, area	20	
(2) Dhumpara „ „	11	
(4) Bholka „ „	20	
		51
Total		250

The additional proposed reserve, situated between the Alaikuri and Kalajhoras, if reserved, should be added to the Borojhar range. Whether the Buxa range should not be divided into two must be left for future consideration.

132. For the present we shall require the following forest establishment :— two rangers, seven foresters, and a sufficient number of watchers.

Ultimately each range should be managed by a ranger, but for the next few years a superior forester will suffice for each of the Borojhar and Huldeebaree ranges.

The Buxa reserve is in charge of a ranger assisted by two foresters. The second ranger looks after the depôts assisted by three depôt munshees (foresters).

133. (*b.*) *Breaches of Forest Rules.*—We have instituted four cases involving five persons, and in all these convictions have been obtained. One was a case against two Bhuteas for setting fire to the forest and abstracting forest produce at the same time. They were fined for the latter part of the offence, but the lighting of the fire could not be brought home to them.

134. (*c.*) *Roads and Bridges.*—During the year under review the 30¾ miles of fair weather roads made in former years were cleared and repaired at a cost of Rs. 16-8 per mile, against Rs. 21 per mile in the previous year, the total expenditure being about Rs. 500. In addition, the 22nd mile road was extended by half a mile in an easterly direction, and the 18th mile road, length about 5 miles, commenced.

135. Up to date we have made the following roads, according to the latest measurements :—

	Miles.	
The 30th mile road, length	2·2	
„ 29th „	2·6	
„ 28th „	2·6	
„ 27th „	3·4	
„ 26th „	3·7	
„ 25th „	3·8	
„ 24th „	3·6	
„ 23rd „	4·0	
„ 22nd „	5·0	
„ 18th „	5·0	Not quite complete.
Total ...	36·1	

If we add to this 72·5 miles of boundary paths, it must be admitted that fair progress has been made during the last four years in opening out this valuable reserve.

136. There remain now the following roads to be made in the Rajabathkawa blocks:—

		Miles.
The 21st mile road, length	... ...	4
„ 20th ditto	... ...	4½
„ 19th ditto	... ...	5
	Total ...	13½

These it is proposed to lay out in 1878-79.

137. (*d.*) *Buildings.*—Only slight repairs on existing buildings have been carried out during the year. The elephant shed and the out-houses of the Rajabathkawa rest-house were, the Conservator regrets to say, destroyed by fire just before the close of the official year.

138. (*e.*) *Reproductive measures.*—It has been stated in last year's report that, as a commencement, a belt about 100 feet broad, running along the south boundary of the Buxa reserve, was planted with sâl, the seedlings having been collected in the surrounding natural forest. In this way a strip 1,845 feet long was planted in 1876-77. During the year under review an extension of 9,900 feet in length was not planted with transplants, but sown with sâl seed in rows, which are partly five feet and partly 15 feet apart. The sâl seed germinated favorably, and the experiment promised well. On the approach of the fire season the grass between the 10 rows nearest the boundary was cleared away, to reduce the danger from fire. The effect of this was that about two-thirds of the seedlings dried up from the effects of the heat of the sun.

139. The Conservator, when inspecting the locality in March last, came to the conclusion that planting is preferable to sowing: hence the seedlings will in future be raised in nurseries and planted out when one or two years old. Seed sown direct requires the shade of the tall grass during the first year, but on the other hand the presence of the grass increases the danger of fire. When the protecting belt along the boundary has been established, the blanks inside can be stocked cheaply by sowing, because then it will not be necessary to clear away the grass. During the present season all vacancies will be filled up by transplants, and, if possible, a further extension made.

140. (*f.*) *Creeper cutting.*—Up to the 1st April 1877 conpartments 1 to 10 in block Rajabathkawa, measuring 8,173 acres, had been cleared of creepers. These were the compartments worked under the working plan. During the year under review compartment 11, the only one remaining of those worked, was cleared of creepers. The area of the compartment is 973 acres, and hence the total area cleared up to date amounts to 9,146 acres. The creeper cutting will be continued as compartments are worked.

141. (*g.*) *Protection from Fire.*—During the year 1876-77 we protected the Rajabathkawa and Poro blocks of the Buxa reserve from fire, these two blocks, measuring 47,360 acres, of which only 60 acres were burnt. That year was favorable for fire protection.

142. During the year under review we attempted the protection of the following areas:—

Buxa reserve, area	91,100 acres.
Bholka „ „	12,800 „
Total ...	103,900 „

Although we made a real effort, we have succeeded only partially, as not less than eight fires occurred in the Buxa reserve and one in Bholka, whereby the following areas were burnt:—

In the Buxa reserve	35,440 acres.
„ „ Bholka „	1,000 „
Total ...	36,440 „

The area actually protected during the year amounts therefore to—

In the Buxa reserve	... ...	55,660 acres.
„ „ Bholka „ ...	... ...	11,800 „
	Total ...	67,460 „

or about two-thirds of the area we attempted to protect.

143. Of the eight fires in the Buxa reserve, six were put out before they could do any damage, but two occurred while very high winds were blowing, and they spread altogether over an area of 35,440 acres. Efforts were in both instances made to stop the fires along roads and by counter fires, but without avail, and it was only when they reached dense groups and rows of trees that they could be put out. Both fires were lighted inside the reserves, one by cattle owners and the other by a blacksmith, who resided at Rajabathkawa, where he worked for the department.

144. It has been decided, as cattle grazing cannot entirely be stopped on account of the milk required for the Regiment at Buxa, to burn in future years the northern part of the Punbari block under supervision, and to confine cattle grazing to the burnt part. In this way it is hoped to avoid damage to the rest of the forest in future.

145. The second fire occurred through an awkward accident. The house of the blacksmith at Rajabathkawa got on fire while a regular gale was blowing. It spread to the out-houses of the rest-house, thence to the elephant shed, and it then jumped over a cleared belt 100 feet broad into the jungle. Its extension was so rapid, driven by a furious wind, that it was impossible to stop it.

146. It has been mentioned above that 55,660 acres were successfully protected in the Buxa reserve. Of this area the following parts have been protected two years running :—

		Acres.
In the Rajabathkawa block	... ...	18,000
„ „ Poro „	... ...	600
„ „ Buxa hills „	... ...	12,800
„ „ Punbari „	... ...	9,200
	Total ...	40,600

The areas protected only during the last year are—

In the Raimatong block	... ...	8,500
„ „ Punbari	... ...	6,500
	Total ...	15,000
	GRAND TOTAL ...	55,600

It should be noted here that the Buxa hills and the Punbari block were not included in last year's returns, though they were not burnt.

147. The fire in the Bholka forest occurred after all danger was considered past, and it spread over about 1,000 acres.

148. Although our measures were only partially successful, still we have achieved more than would have been considered possible a few years ago during a year so unfavorable for fire protection as the one under review; and there is no reason why we should not be altogether successful after another year or so, when the people come to understand better what our object is, and when they see that they cannot set fire to the forest without becoming liable to severe punishment. In one point we have made very great progress during the year, and that is in the co-operation which the people in the vicinity of the reserves have afforded to us; and it is this which makes the Conservator hopeful of success in the future.

3.—YIELD AND WORKING.

149. The Borojhar, Raidak, Dhumpara, and Bholka forests, have so far enjoyed rest. The working of the Buxa reserve by Government agency

according to a working plan was commenced in 1875. The subjoined table exhibits the trees cut up to the 31st March 1878 :—

Block and Compartment.	Number of trees felled in 1877-78.			Number of trees felled before.			Total number of trees felled up to 31st March 1878.		
	Sâl.	Sissu.	Total.	Sâl.	Sissu.	Total.	Sâl.	Sissu.	Total.
Block III.—*Rajabathkawa.*									
Compartment 1	.....	.....	.....	630	9	639	630	9	639
Ditto 2	.....	.....	.....	281	22	303	281	22	303
Ditto 3	.....	.....	.....	894	83	977	894	83	977
Ditto 4	.....	.....	.....	252	26	278	252	26	278
Ditto 5	.....	.....	.....	145	110	255	145	110	255
Ditto 6	.....	....	...	638	.....	638	638	...	638
Ditto 7	84	338	422	314	.....	314	398	338	736
Ditto 8	1,148	7	1,150	599	... .	599	1,742	7	1,749
Ditto 9	20	19	39	7	369	376	27	388	415
Ditto 10	399	79	478	1,224	201	1,425	1,623	280	1,903
Ditto 11	679	.....	679	.. ..	.....	.....	679	.....	679
Total ...	2,325	443	2,768	4,984	820	5,804	7,309	1,263	8,572

On reference to the working plan (see map appended to the report for 1874-75) it will be observed that compartment 12 should also have been worked during the year.

This was not done because the sales did not equal the quantities brought to depôt. Since the close of the year the demand has so risen that it has become greater than the supply available under the working plan. The trees were cut up into 3,356 logs, and of these 2,475 were dragged to the roads by the departmental elephants. On the 31st March 1878 there remained 3,887 logs in the forest.

150. The following quantities of timber reached the depôt during the year :—

Description of Timber.	Pieces.	Cubic feet.	Total. Pieces.	Total. Cubic feet.
Logs—Sâl	255	8,933		
Sissu	23	335		
Miscellaneous ...	6	96	284	9,364
Sleepers—Sâl, narrow gauge...	14,596	19,460	14,596	19,460
Other Scantlings—Slabs, &c. ...	965	?	965	.....
Kala Khambas	157	?	157	
Add—				
Transferred from Alipore to Gacheedanga depôt.				
Logs—Sâl	442	13,448		
Scantlings—Slabs ...	91	?		
Kala Khambas	139	?	672	13,448
Transferred from Alipore to Kaoonee depôt.				
Sleepers—Sâl, narrow gauge			1,2068	16,089
Grand Total ...			28,742	58,361

Of the 14,596 sleepers, 7,864 were cut in the Buxa forest by the road side, and 6,732 were cut in the Alipore depôt out of second class logs. For this purpose 871 logs, containing 21,146 cubic feet of timber, were sawn up. It will be observed that each sleeper required 3·14 cubic feet of timber, which is equal to an outturn of 43 per cent. The low percentage is due to a large portion of the timber consisting of old logs which had been cut some ten years ago. The new logs by themselves yielded an outturn of about 66 per cent.

151. The timber sold from depôts is exhibited below:—

Description of Timber.	Pieces.	Cubic feet.	Total. Pieces.	Total. Cubic feet.
Logs—Sâl	510	12,593		
Sissu	4	59		
			514	12,625
Sleepers—Sâl, narrow gauge ...	...	...	6,147	8,195
Other Scantlings—Slabs, &c. ...	...	...	218	?
Kala Khambas	...	...	134	?
Total		...	7,013	20,847
Add—Sâl logs cut up into sleepers in the Alipore depôt	...	...	871	21,146
Lost and used by the department	...	...	17	51
Grand Total		...	7,901	42,044

152. The receipts at depôts and the disposals compare thus:—

	Pieces.	Cubic feet.
Receipts at depôt	16,002	28,824
Disposal	7,901	42,044
In favour of the year ...	8,101	.....
Against the year ...	.....	13,220

At the close of the year there were 8,101 pieces more, but 13,220 cubic feet less in depôt, which is due to our having cut up 21,146 cubic feet into sleepers, thereby causing a loss by wastage of 12,171 cubic feet. This loss is made up by the enhanced value of the sleepers, as compared with the value of the timber in the log.

153. Financially the timber operations show the following results:—

	Rs.	A.	P.
Average amount realized per cubic feet	1	10	0
" expenditure per cubic foot, including share of establishments, elephants, tools, &c.	1	4	7
Surplus per cubic foot ...	0	5	5

154. As already mentioned above, the working of the Buxa reserve was commenced in 1875, and the annual yield is roughly estimated at about 4,000 logs, containing about 100,000 cubic feet of timber. Hitherto we have not been able to dispose of that quantity, so that we have not only not worked up to the permitted maximum, but we have also collected 88,662 cubic feet of timber, worth Rs. 1,12,614, in the depôts. Lately we have, however, found a permanent market in the supply of sleepers to the Northern Bengal State Railway. The Engineer-in-Chief of that line states that he will require 50,000 sleepers in 1878-79, 80,000 in 1879-80, and about 100,000 in every following year; in other words, more than we can give from the Buxa reserve, and as much as we can derive, for some time to come, from all the forests in the Dooars. Besides the above, the construction of roads in the Dooars and from Rungpore to Dhubri will consume large quantities of timber in the log.

155. Under these circumstances we have changed the system of working, so, that only the very best pieces are brought out in the log, while all the rest will be cut up into sleepers in the forest. This will reduce the expenditure per cubic foot considerably, as the carting of sleepers is cheaper per cubic foot than that of large logs.

156. We have established two new depôts during the year, one at Gacheedanga, situated where the Rungpore-Dhubri road crosses the Kaljani or Guddadur, and the other at Kaoonee, the present terminus of the Northern Bengal State Railway on the Teesta, about 14 miles from Rungpore. When the Dhubri line of railway has been constructed, it will be possible to reach Gacheedanga, the future main depôt, by railway.

157. The subjoined list exhibits the produce removed from the forests by purchasers during the year :—

Description.	Number of trees.	Amount realized or due.	Rate.	Remarks.
Green trees.		Rs. A. P.	Rs. A. P.	
Sál	1	15 0 0	15 0 0	
Simul	5	30 0 0	6 0 0	
Roeri	1	6 0 0	6 0 0	
Ordang	1	6 0 0	6 0 0	
Dead trees.				
Kala khambas above 6′ girth	2	20 0 0	10 0 0	
Ditto 4½′ to 6′ ,, ...	24	168 0 0	7 0 0	
Ditto 3′ ,, 4½′ ,, ...	379	1,137 0 0	3 0 0	
Ditto 2′ ,, 3′ ,, ...	843	843 0 0	1 0 0	
Do. under 2′	587	293 8 0	0 8 0	
Sissu khambas 4½′ ,, 6′ ,, ...	6	42 0 0	7 0 0	
Ditto 3′ ,, 4½′ ,, ...	41	123 0 0	3 0 0	
Ditto 2′ ,, 3′ ,, ...	2	2 0 0	1 0 0	
Khair ditto 3′ ,, 4½′ ,, ...	5	7 8 0	1 8 0	
Ditto 2′ ,, 3′ ,, ...	6	4 8 0	0 12 0	
Sál gools	4	12 0 0	3 0 0	
Do. pieces	16	4 0 0	0 4 0	
Old boundary posts	21	2 10 0	0 2 0	
Dug-out boat	1	8 0 0	8 0 0	
Total shown under II *a*. ...	.....	2,724 2 0	.....	
Firewood and charcoal.				
Carts of 10 maunds each	287	89 11 0	0 5 0	Per cart.
Pony loads	30	2 13 0	0 1 6	Per pony load.
Total shown under II *b*. ...	.....	92 8 0	.....	
Bamboos.				
Bamboos	3,502	35 0 2	1 0 0	Per hundred.
Total shown under II *c*. ...	.....	35 0 2	.....	
Grazing and fodder grass.				
Elephants	815	50 15 0	0 1 0	Per animal per day.
Buffaloes	2,378	146 2 0	0 1 0	Ditto per month.
Cows	28	1 12 0	0 1 0	Ditto ditto.
Grass loads	4	0 1 0	0 0 3	Per load.
Total shown under II *d*. ...	.....	198 14 0	.....	
Other minor produce.				
Cane tickets	1	4 0 0	4 0 0	Per ticket.
Thatch grass loads	274	4 4 6	0 0 3	Per load.
Ditto ditto	3,543	36 14 5	0 0 2	Ditto.
Total shown under II *e*. ...	.....	45 2 11	.....	
Grand total shown under II *a, b, c, d, & e* ...	.....	3,095 11 1	.....	

158. The total number of green trees cut during the year is—

By Government agency ...	...	...	2,768 trees.
,, Private purchasers ...	...	...	8 ,,
	Total	...	2,776 ,,

or about 11 trees per square mile. In addition we have removed 1,932 dry trees and pieces.

4.—Financial Results.

159. These stand as follow :—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1. Departmental timber operation	33,887 10 9	37,109 12 11	.....	3,222 2 2
2. Other revenue	3,265 7 7	6,262 3 0	.....	2,996 11 5
3. Formation, protection and improvement of forests	.....	7,286 6 6	.....	7,286 6 6
Total ...	37,153 2 4	50,658 6 5	.....	13,505 4 1

The deficit is due—

(1) to the small sales from depôts during the year;
(2) to the fact that Rs. 12,095 were disbursed during the year on account of former years;
(3) to the fact that 8,449 sleepers were not made over to the railway authorities during the year, and the greater part of the expenditure incurred on them has been disbursed during the year. Whereas the year under review commenced with a deficit, the year 1878-79 started with a surplus, the above mentioned sleepers having been made over in April last. It will be observed, from what has been stated in paragraph 154, that henceforth the division must yield a surplus.

F.—PALAMOW DIVISION.

1.—Area and Boundaries.

160. (*a.*) *Area.*—On the 1st April 1877 the area of reserves stood thus:—

In Palamow ...	...	37 blocks with an area	= 151	square miles.
In Shahabad (Rohtas)	...	3 blocks "	= 37	" "
		Total ...	188	" "

During the cold-weather of 1876-77 the Conservator examined all these blocks, and he succeeded in arranging with the Assistant Commissioner of Palamow a series of exchanges by which the original 37 small blocks in Palamow were reduced to seven blocks containing an area of 179 square miles. These arrangements received the sanction of Government in May 1877, so that the area of the division comprises now—

In Palamow ...	...	7 blocks =	179	square miles.
In Shahabad (Rohtas)	...	3 blocks =	37	" "
		Total ...	216	" "

161. The new blocks in Palamow were gazetted by a notification dated 10th May 1877, published at page 590 of the *Calcutta Gazette* of the 16th May 1877, and their boundaries are the following:—

1.—*The Kechki Forest (reserved for a depôt).*

North.—The Aurunga river.
West.—The Koel river.
South-east.—A line running from the Koel to the Aurunga.
Estimated area = 1 square mile.

2.—*The Betlah Forest.*

North.—The north boundary of mouzah Hateeyah; then the western boundary of Damooder Khar; then down a feeder of the Aurunga river to that river, then the Aurunga.
East.—The Aurunga river.
South.—The south boundary of Damooder Khar, then down a small stream joining the Teorahee nuddy; then up the Teorahee nuddy, then the northern boundaries of Lookum Khar, Gadee, and Kocheelah mouzahs.
West.—A straight line running from the junction of the boundaries of Kocheelah, Ookumand, and Moondah, in a northerly direction to the junction of the boundaries of Moondah, Dooramee, Ukhera, and Betlah mouzahs.
Estimated area = 11 square miles.

3.—*The Saidope Forest.*

North.—The northern boundary of Khamee Tuppah to the junction of the boundaries of Morwaie-Kullan, Jurgudh, Ganseday, and Lat; then following the western boundary of Jurgudh to a western feeder of the Douree nuddy; then

down that feeder to the western boundary of Saidope; then along that boundary in a southerly direction to the foot of the hills; then following the foot of the hills to the eastern boundary of Saidope; then the eastern boundary of Saidope to an eastern branch of the Douree nuddy; then that branch until to a point about one mile north-west of Hurnomand village; then a line running in a southerly direction to the foot of the hills; then following the foot of the hills to the western boundary of Joroahur; then a line following a small stream for about one mile in a north-easterly direction, and then northerly direction to the junction of the boundary of Gadee, Cheepadohur, and Kedh; then along the northern boundary of Kedh to the Aurunga river.

East.—The Aurunga river, then the Pooboa and Jeewa nuddies.

South.—The western boundary of Baree tuppah; then up a feeder of the Jeewa nuddy; then following the foot of the hills up the Charo nuddy; then the Charo nuddy and the Koel river.

West.—The western boundary of Meral mouzahs.

Estimated area = 43 square miles.

4.—*The Kumandee Forest.*

North.—A line starting from the north-eastern boundary of Kutteeyah and following the foot of the hills to the western boundary of Kumandee; then along the southern boundary of Kumandee; then up a small stream; then the southern boundary of Nowagudha; then down a small stream for a short distance; then up another branch of it; then along the southern boundary of Bindi.

East.—The western boundary of Bichrah and Zer.

South.—The north-western boundary of Munkheree tuppah; then the northern boundary Kookoo; then the Ranee Deh nuddy to where the north-eastern boundary of Katteeyah crosses it.

South-west.—The north-eastern boundary of Katteeyah.

Estimated area = 14 square miles.

5.—*The Ramundag Forest.*

North.—The Burmahee nuddy; then a line running in an easterly direction to the western boundary of Purroh; then the northern boundary of Purroh and Ramundag; then the eastern boundary of Khamee tuppah; then the northern boundary of Kantokona and Koreemoree mouzahs to the Dhadoon nuddy.

East.—The Dhadoon nuddy.

South.—The Jarhur nuddy and the Koel river.

West.—The Goanjh nuddy.

Estimated area = 17 square miles.

6.—*The Barasand Forest.*

North.—The Koel river.

East.—The eastern boundary of Barasand tuppah.

South.—A line running from the east boundary of Barasand tuppah, first in a northerly and then easterly direction to the junction of the Barasand and Checharee roads; then following the Checharee road in a southerly direction to where it crosses the northern boundary of Checharee tuppah; then following the northern boundary of Checharee tuppah in a westerly direction.

West.—The western boundary of Barasand tuppah.

Estimated area = 52 square miles.

7.—*The Seema Forest.*

North.—The southern and eastern boundary of Maromand; then the southern boundary of Loiah; then the western boundary of Hoolok; then the northern boundary of Serum; then the western boundary of Dareechapur, Jaigir, and Bareebun; then the northern boundary of Kanteh for about one mile; then a line running in a southerly direction to the south boundary of Kanteh; then the southern boundary of Kanteh, Toosedag, and Bood, to a small feeder of the Koel; then down that feeder to the Koel.

East.—The Koel river.

South.—Starting from the Koel first the south boundary of Palamow, until where it meets the edge of the Neturhat plateau; then a line following the edge of that plateau in a northerly direction until opposite the source of a small stream, which joins the Pindra nuddy about one mile below Pindra; then a straight line running in a westerly direction to where the southern boundary of mouzah Korgee hits the western boundary of Seema tuppah.

West.—The western boundary of Seema tuppah.

Estimated area = 41 square miles.

These forests are of the same composition as the original 37 blocks described in paragraph 26 of the report for 1875-76.

162. A number of villages exist in the reserves, but as the people all *jhoom*, and as large areas of land outside the reserves are available for cultivation, it has been agreed that the people are to be bought out. This will not involve any hardship, as they, under ordinary circumstances, are in the habit of changing the sites of their villages, and as care is being taken by the Assistant Commissioner to secure such new sites which the people may like to settle on.

163. (*b.*) *Demarcation.*—The Government ordered a settlement to be made of the three Rohtas reserves, owing to the surrounding population disputing the boundaries laid down by the officer in charge of the division in April and May of 1877. The necessary orders were issued by Government about 12 months ago, but up to date the Conservator has not received any information of the work having been begun. This is much to be regretted, as without definite boundaries having been fixed, and the rights of the surrounding population, if any, ascertained, it will be quite impossible to start a reasonable system of conservancy.

164. In Palamow we have demarcated all the reserves during the year, with the exception of the small Kechki block, which has been taken up for a depôt. Wooden posts, surrounded by heaps of stones, have been erected along all boundary lines. Where rivers form the boundary only occasional posts were erected, but on all other lines the posts are within sight of each other, and a tract 16 feet broad has been cleared from post to post. The boundaries of the several blocks are estimated to extend over the following lengths:—

Names of Reserves.	Boundaries formed by rivers.	Cleared lines.	Total.
Betlah reserve	7	10	17
Saidope "	29	29	58
Kumandee "	5	13	18
Ramundag "	19	7	26
Baras and Seema "	30	53	83
Total ...	90	112	202

The demarcation has been carried out at an expenditure of under five rupees per running mile, which must be considered very satisfactory. The Conservator has not yet inspected the work, but he hopes to do so during the coming working season.

2.—Protection and Improvement.

165. Little can be said as yet under this head, because the officer in charge was throughout the working season occupied with demarcation work, and as, owing to circumstances beyond our control, the settlement with the cultivators inside the reserves could not be carried out. Arrangements have, however, been made now that they will leave after harvesting the present crops, when the areas will come under the full control of this department.

166. (*a.*) *Establishments.*—We have hitherto entertained five foresters and 25 watchers.

The charges have been arranged in the following manner :—

PALAMOW.

I.—Hurnamand Range.

	Area.	
1. Keohki reserve	1 square mile	
2. The Betlah „	11 square miles.	
3. Saidope „	43 „	
	—	55 square miles.

II.—Kumandee Range.

1. The Kumandee reserve	14 square miles.	
2. Ramundag „	17 „	
	—	31 square miles.
III.—Barasand Range	...	52 „
IV.—Seema Range	...	41 „

SHAHABAD.

V.—Rohtas Range.

1. The Rohtas reserve, plateau and slopes ...	20 square miles.	
2. „ Rehul ditto ditto ...	11 „	
3. „ Bansikoh ditto ditto ...	6 „	
	—	37 square miles.
	Total ...	216

167. We require for the present the following forest establishment :—

1 Ranger,
4 Foresters, and
25 Watchers.

The ranger should be in charge of the Rohtas range, which is some distance from the head-quarters of the divisional officer.

168. (*b.*) *Breaches of Forest Rules.*—There have been no prosecutions for breaches of the forest rules.

169. (*c.*) *Buildings.*—We have erected three substantial huts at Hurnamand, Kumandee, and Seema for the use of the foresters, and also to afford shelter to the divisional officer when inspecting the foresters' work during the hot season or the rains. There being accommodation at Barasand, it was not necessary to erect a house at that place. It is proposed to build a small inspection house at Neturhat during the present year.

3.—YIELD AND WORKING.

170. So far we have not yet laid down any special plan according to which the forests are to be worked. There is some mature sâl in some parts, specially in the Seema block, which might, if the necessity arises, be worked out for the Dehri and Patna markets. The latter is at present supplied from the Nepaul and Oudh forests. On the whole, however, the forests require rest, and it will therefore be best to restrict the working for some years to come to the disposal of bamboos and minor produce, and to such timber as may be locally required. Sâl should in particular be jealously guarded until a regular working of the forests can be commenced.

171. The subjoined list exhibits the material removed from the forests by private purchasers :—

DESCRIPTION.	Number.	Amount realized.	Rate.	REMARKS.
		Rs. A. P.	Rs. A. P.	
Poles	200	12 8 0	0 1 0	Each.
Rafters	100	6 4 0	0 1 0	„
Charcoal	180	0 15 0	0 0 1	Per head load.
Bamboos	2,900	11 4 0	0 6 2	Per 100.
Grazing and fodder grass	.....	375 1 6	.....	
Thatching grass...	2,061	14 6 6	.....	
Iron ore	180	0 15 0	0 1 0	
Mowah	.....	67 12 0	.....	
Sabai grass	.....	13 9 3	.....	
Lac	.....	61 0 0	.....	
Limestone	18	0 4 6	.....	
Dhal	.....	0 3 0	.....	
Total revenue under II*a*, *b*, *c*, *d*, and *e* ...	.....	564 2 9	.....	

4.—Financial Results.

172. These stand as follows :—

		Rs.	A.	P.
Receipts	...	1,005	15	2
Charges	A. 1,860 6 3 B. 14,227 13 3	16,088	3	6
Deficit	...	15,082	4	4

All that we can hope to achieve during the next few years is to keep the deficit below Rs. 10,000 per annum. Hereafter these forests should yield a considerable surplus, as the timber from it can be taken to the Shahabad, Patna, and Gya districts, which are very poor in forest growth.

G.—SUNDERBUNS.

1.—Area and Boundaries.

173. No changes have taken place, the reserved area standing thus :—

	Area. Square miles.
1. The Bagirhat block holds about	500
2 „ Khoolna ditto	699
3. „ Satkira ditto	382
Total ...	1,581

The area has been demarcated with boards, two feet by one foot, nailed on prominent trees, or on posts erected for the purpose.

2.—Protection and Improvement.

174. (*a.*) *Establishments.*—No changes in the scale have been made. We entertain a forest establishment of—

1 Ranger,
22 Foresters, and
13 Watchers.

As the Government have passed orders that the waste lands in the Sunderbuns outside the reserves (except those in the Backergunge district) are to be formed into a protected forest under chapter IV of the Forest Act, it will be necessary to reorganize the forest establishment. The Conservator proposes to entertain the following establishment as soon as the protected forest has been gazetted :—

5 Rangers and
25 Foresters, and he would divide the whole into the following five ranges :—

I.—*Baghirhat Range*, head-quarters at Upper Bhola station—
(1) Lower Bhola revenue station.
(2) Upper Bhola revenue station.

II.—*Khulna Range*, head-quarters at Khulna, or some suitable place below it—
(1) Khulna station.
(2) Pussur station.
(3) Bhuddur station.
(4) Sepsah station.
(5) Khoyra station.

III.—*Satkhira Range*, head-quarters at Bussuntpore—
(1) Cobaduk station.
(2) Isripore (Echamuttee) station.
(3) Bussuntpore station.
(4) Ruymungal station.

IV.—*Baseerhat Range*, head-quarters at Port Canning—
(1) Rampoora station.
(2) Mutlah station.
(3) Bagee station.

V.—*Diamond Harbour Range*, head-quarters at Saterbog—
(1) Saterbog.
(2) Mooroegunga.

The extent of the division will be so great that it will be necessary to have a superior class of men, rangers, at regular intervals.

175. (*b.*) *Breaches of Forest Rules.*—In 1876-77 we instituted 220 cases, involving 217 persons. During the year under review the number of cases amounted to 95, involving 96 persons. It will be observed that the number of cases during the last year is less than half the number during the previous year. If it is further taken into consideration that the revenue has more than doubled during the last year, it is evident that the protection must have very considerably improved. This is due—

(1) to the fact that the people have become accustomed to the new arrangements;
(2) to the fact that a steamer has been at the disposal of the officer in charge throughout the year;
(3) to the energy and good judgment of the officer in charge in dealing with the people.

We obtained 26 convictions during the year, 19 cases are pending, 2 were withdrawn, and 48 discharged. Out of 95 cases 88 referred to unlawful cutting and removal of forest produce.

176. (*c.*) *Buildings and Boats.*—We have built three station-houses during the year, namely at the Upper Bhola, Cobaduk, and Sepsah stations. There are now 5 such houses, and by degrees the remaining stations, where such is practicable, will also be supplied with accommodation on shore.

177. It has been mentioned in last year's report that the hired boats were not only expensive, but often unsafe: hence a beginning was made last year to build departmental boats. The work has been continued during the year under review, so that we have now 31 boats, 23 of which are substantially built and new.

178. (*d.*) *Reproductive Measures.*—As already stated in previous reports, the natural production is so powerful that no artificial interference appears necessary.

179. We have, by the order of Government, made two small experiments —one a baobab, and the other a bamboo plantation—with the view of ascertaining whether either could be grown cheaply for paper-stock. In September 1876 we planted 192 baobab seedlings near the Sepsah station. They have now been close on two years on the ground. The Conservator of Forests inspected them in February last, and he does not think any practical results will be gained. The seedlings are simply alive, but not thriving, the largest being now little more than two feet high.

180. The 1,190 bamboo root offsets, which we planted adjoining the baobab plantation in April, May, and June 1877, have all died, thus showing that the real Sunderbuns will not do for them. The details of the experiment were noted in paragraph 114 of last year's report.

181. (*e.*) *Protection from Fire.*—No special measures are necessary, owing to the damp state of the soil, which is subjected to inundation at high tide.

3.—Yield and Working.

182. We have cut by departmental agency 2,000 Sundri posts during the year and sent them to Sara, on the Northern Bengal State Railway, to be used experimentally for fencing. With this exception no departmental timber operations have been conducted.

The system of working remained the same as in former years. In the Bagirhat block no Sundri tree of less than two and a half hâts, or 3 feet 9 inches in girth, measured at three hâts, or 4 feet 6 inches above the ground, is allowed to be cut; but no restrictions as to size are enforced in the other blocks. There has been no change in the revenue stations, which are 10 in number, besides the head office at Khulna.

183. The quantities of material removed during the year are shown below :—

Description of Timber.	Boats.	Raft.	Logs.	Bundles.	Pieces.	Maunds.	Amount realized and due.	Rate.	Remarks.
							Rs. A. P.	Rs. A. P.	
Sundri timber	3,548	195½	978	.....	.....	6,30,933¾	39,808 5 3	6 4 0	Per 100 maunds.
Keora „	200	2	50	.....	.....	42,045	656 14 9	1 9 0	Ditto.
Sundri posts	47	1	47	.....	.....	13,249	207 0 3	1 9 0	Ditto.
Goran „	891	.....	.....	.....	.....	3,87,992	6,062 6 0	1 9 0	Ditto.
Pussur „	148	14½	11	.....	.....	49,995	781 2 9	1 9 0	Ditto.
Kerpa „	65	.....	.....	.....	.....	29,974	468 5 6	1 9 0	Ditto
Amoor „	121	.....	.....	.....	.....	12,511	195 7 9	1 9 0	Ditto.
Gengwa „	5	.....	.....	.....	.....	372	5 13 0	1 9 0	Ditto.
Dhendal „	3	2	.....	.....	.....	1,645	25 11 3	1 9 0	Ditto.
Total IIa ...	5,028	215	1,086	.....	.....	11,74,714¾	48,211 2 6	.....	
Firewood	11,152¾	.....	.....	64	5	54,63,708	85,370 7 0	1 9 0	Ditto.
Total IIb ...	11,152¾	.....	.....	64	5	54,63,708	85,370 7 0	.....	
Golpatta	8,338	.....	.....	.....	.....	23,10,438	36,100 9 6	1 9 0	Ditto.
Cane	221	.....	.....	.....	.....	7,579	118 6 9	1 9 0	Ditto.
Null	163	6	.....	.....	.....	35,941	561 9 3	1 9 0	Ditto.
Hental	22	.....	.....	.....	.....	7,625	119 2 3	1 9 0	Ditto.
Shells	238	.....	.....	.....	.....	1,03,245	1,613 3 3	1 9 0	Ditto.
Wax and honey	149	.....	.....	.....	.....	.....	1,062 0 0	1 0 0	Per man.
Total IIc ...	9,131	6	.....	.....	.....	24,64,828	39,574 15 0	.....	
Grand Total under IIa, b, & c.	25,311¾	221	1,086	64	5	91,03,250¼	1,73,156 8 6	.....	

These results compare with those of last year as follow :—

	Mds.
Material removed in 1876-77	43,18,157
Ditto ditto 1877-78	91,03,250
Increase in 1877-78 ...	47,85,093

The increase of over 100 per cent. is due not to increased demand, but to a better control on the part of the staff. Of course there was little difference in the quantities actually removed during the two years, but in 1876-77 more than half the quantity was taken away without payment. It will be interesting to see in how far the quantities lawfully removed will further increase in future years.

4.—Financial Results.

184. These stand thus :—

	Rs. A. P.	Rs. A. P.
Receipts		1,73,998 12 0
Charges, A	17,864 6 3	
Ditto, B	15,588 11 1	
		33,453 1 4
Surplus ...		1,40,545 10 8

The area of the Sunderbuns reserves amounts to 1,581 square miles: hence the surplus comes to Rs. 89 per square mile, or to Re. 0-2-3 per acre all round. Considering that we charge only one anna per maund (or cubic foot) for sundri timber and one-fourth of an anna per maund of any other timber or firewood, the above results must be considered as highly satisfactory.

H.—CHITTAGONG DIVISION.

1.—Area and Boundaries.

185. *Area.*—No changes have taken place during the year. The areas are these :—

	Area. Square miles.
(1) The Maiani reserve	339
(2) „ Sitapahar „	8
(3) „ Matamahari „	223
Total ...	570

Forest conservancy in Chittagong is now under discussion, the Government having decided to increase the reserves to some 1,350 square miles, but to abandon as soon as practicable the collection of tolls, by which means hitherto the revenue due on produce removed from both reserved and unreserved forests has been collected. The details have not yet been settled, so that nothing further can be said on the subject for the present.

186. (*b.*) *Demarcation.*—This was completed in 1875-76.

2.—Protection and Improvement.

187. (*a.*) *Establishments.*—We have hitherto entertained a forest establishment of three foresters and 10 watchers, one forester being in charge of each reserve. As soon as the changes indicated above have been carried out, a reorganization of the forest establishment will become necessary.

188. (*b.*) *Breaches of Forest Rules.*—We instituted only one prosecution, and that ended in a case against the forester in charge of the Maiani reserve, who is accused of having taken bribes for permitting the manufacture of three dug-out boats in the reserve. The case was pending at the close of the year.

189. (*c.*) *Roads and Bridges.*—Preparatory to the drawing up of a working plan for the Maiani reserve, it was necessary to cut a system of roads by which to enter the forest. It was decided to cut roads along the eastern and western boundaries, both being formed by watersheds, and to connect them by cross roads leading along spurs. A commencement has been made during the year under review by cutting roads extending over a length of 34 miles. Great difficulties were experienced in carrying out this work, as it was only through the assistance of the Deputy Commissioner that the necessary labour could be procured. It is to be hoped, however, that labour will be easier procurable when the people see that they can get work regularly every season, as the work of road-cutting will have to be pushed on for some years to come.

In addition to the above several short roads have been made in the Sitapahar reserve.

190. (*d.*) *Buildings.*—An inspection bungalow in the Sitapahar reserve, which was commenced in 1876-77, has been completed during the year. We have also built a small house for the forester in charge of the reserve, and one for the native doctor, besides a set of coolies' lines.

191. (*e.*) *Reproductive Measures.*—Operations were started in the Sitapahar reserve in 1871-72, and up to the 1st April 1877 we had planted 171 acres, chiefly with teak. Early in 1877 about 70 acres were cleared for an extension, and 18 maunds of seed sown in nurseries. The results of the year's work are not satisfactory, because the teak seed germinated so badly that only 25 acres could be planted. To make matters worse, an unusually high flood destroyed 11 acres, so that the actual extension comprises only 14 acres, bringing the total area planted up to 185 acres.

192. The Conservator inspected the plantation in January last, and he has arranged that no more area which is in the least liable to inundation will be planted with teak. Moreover, orders have been issued to mix the teak with toon, and to plant jarul in the low parts of the reserve.

193. At the Maiani reserve we have commenced planting an avenue of the more valuable trees along the boundary line, and in this way a length of about one mile has been planted with jarul and tali during the year under review. A nursery has also been sown for further extensions.

194. (*f.*) *Creeper-cutting*—This work has been continued during the year in the Maiani reserves, though as yet on a limited scale.

The following trees are reported as having been cleared of creepers:—

	Trees.
Jarul	1,478
Tali	1,132
Chapalish	79
Toon	45
Gurjun	51
Total ...	2,785

Arrangements will be made to carry out this work on a larger scale during this year.

195. (*g.*) *Protection from Fire.*—The divisional officer reports that all the reserves have been successfully protected against fire during the year. Only round the planted area in Sitapahar has a fire line been cleared. The other areas have been protected simply by impressing upon the people that they must not burn the reserves.

3.—Yield and Working.

196. So far the reserves have not been worked for timber. In the Maiani and Matamahari reserves we allowed the cutting and removal of bamboos, canes, sun-grass, and other minor produce, but the quantities taken out cannot be given separately from those removed from the open forests.

197. In the Sitapahar reserve we have only sold the right to cut and remove sun-grass, which at a public auction brought Rs. 245, as against Rs. 1,272 in 1876-77. A similar falling off took place in the sales of sun-khulas under the Deputy Commissioner, and it is attributed to the reduced state of the country consequent on a succession of bad harvests.

4.—Financial Results.

198. These cannot be given separately from those of the open forests.

I.—SONTHAL PERGUNNAHS, HAZAREEBAGH, AND SINGBHOOM.

199. The following reserves have been gazetted in these districts:—

	Area. Square miles.
Damin-i-koh (Sonthal Pergunnahs)	40
Koderma (Hazareebagh)	60
Saranda Pir (Singbhoom)	400
Total ...	500

200. It has been decided during the year under review to give up the Damin-i-koh as a reserve, owing to the difficulty of disposing of the people living in it. For similar reasons it has been decided to reduce the Koderma reserve to about 36 square miles. Nothing has been done as yet regarding the Saranda Pir.

201. The Koderma reserve will be demarcated and taken under management early in the coming working season, and it is also hoped that the work will be started in Saranda Pir.

SECTION III.—UNRESERVED FORESTS.

202. We had hitherto to do with unreserved forests in Julpigoree and Chittagong, the areas being as follows:—

	Area. Square miles.
In Julpigoree	8
„ Chittagong	5,100
Total ...	5,108

1.—Julpigoree Division.

203. The eight square miles are made up by a number of small blocks which it is intended to work out, and then to let them be brought under cultivation. During the year under review we have cut 100 sâl trees in the Muraghat open forest, the account of which has been given under reserves. Since the close of the year the timber derived from these trees has, under the orders of Government, been made over to the Deputy Commissioner of Julpigoree at cost price, to be used for the provincial works.

2.—Chittagong Division.

204. The system under which the open forests of Chittagong are managed has been recorded in paragraph 132 of last year's report. It has been shown there that the forests are practically under the Deputy Commissioner of the Chittagong Hill Tracts, and that the duties of this department are restricted to the collection of the revenue at so-called toll stations, and to the enforcement of certain restrictions regarding the size of the timber to be exported.

205. During the year under review we had to institute seven prosecutions, in which eight persons were concerned. Four of these cases referred to smuggling forest produce past the revenue stations, two to forging the departmental hammer mark, and in the seventh case a forester was accused of extorting money over and above the amount due under the rules. The latter case was dismissed by the court. In two of the other cases convictions were obtained.

206. The subjoined tables exhibit the material exported from the Hill Tracts during the last seven years as far as the data are available, and the financial results:—

Description of Produce.	Years.						
	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.
	Cubic feet.	Cubic feet.	Cubic feet.	Cubic feet.	Cubic feet.	Cubic feet.	Cubic feet.
Timber in logs	22,150	52,800	30,500	56,500	51,600	26,616	21,750
" boats	9,760	43,560	65,600	151,760	98,520	65,589	5,740
" beams and planks	33,640	760	20,360	44,400	7,080	11,433	10,039
Total of Timber ...	65,550	97,120	116,460	252,660	157,200	103,638	37,529
Orah bamboos, number	.....	.....	.....	196,397	163,115	105,983	84,716
Daloo " "	.....	.....	.....	641,426	726,120	496,734	628,196
Moolee " "	.....	.....	.....	26,816,140	17,754,291	14,262,743	11,365,643
Sun-grass, bundles	.....	.....	.....	6,022,121	4,957,644	4,529,443	5,316,493
Canes, number	.....	.....	.....	2,327,913	4,869,858	3,244,500	2,728,408
Gurgun oil, maunds	.....	.....	.....	216	816	365	418

Financial Results.

	Years.						
	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Receipts	47,558	61,400	72,041	1,13,196	87,601	65,654	57,378
Expenditure	8,479	10,195	12,685	14,588	22,648	26,209	27,132
Surplus ...	39,079	51,205	59,356	98,608	64,953	39,445	30,246
Area of reserves in acres	.....	.....	.....	347	570	570	570

It will be observed that both the quantity of material removed as well as the revenue have fallen off again, as compared with last year. This is due to the low state of the country consequent on a succession of bad harvests, and partly to import of timber from Arakan, where timber may be cut free of charge.

207. Since the close of the year the management of the open forests has been entirely made over to the Deputy Commissioner, with the view of abolishing the collection of revenue in the shape of tolls, and of substituting the system of selling the right to cut forest produce within certain limits.

3.—Sunderbuns Division.

208. It has been decided to declare the unleased Sunberbuns, situated in the 24-Pergunnahs and Jessore, comprising an area of between 1,300 and 1,400 square miles, a protected forest under Chapter IV of the new Forest Act until required for cultivation. The record of further details must be postponed until next year, as the notification has not yet appeared in the official Gazette.

ANNUAL FORM No. 45.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Reserved Forests, 1877-78.

Division or Range.	Name of Forest.	Area on 1st April 1877.	Added during the year.	Total on 31st March 1878.		Number and date of Notification of additions and transfers, &c.
		Square miles.	Square miles.	Square miles	Total of division in square miles.	
Darjeeling division ...	.....	26	.. ...	26	26	
Teesta ditto ...	.....	57	.....	57	57	
Kurseong ditto ...	.. ...	78	.....	78	78	
Julpigoree ditto ..	Apalchand forest...	26	.....	26		
	Tundu	73	.....	73		
	Dainah	24	.....	24		
	Muraghat	17	.....	17	.....	Notification dated 9th July 1877.
	Dulgaon	.. ...	2½	2½	.....	Ditto
	Dumchi	...	3	3	.....	Ditto.
	Khairbari	.. ...	6½	6½		
					152	
Buxa ditto ...	Borojhar	55	.....	55		
	Buxa	144	.....	144		
	Raidak	20	..	20		
	Dhumpara ...	11	.....	11		
	Bholka	20	.. ..	20		
					250	
Palamow ditto ..	Palamow	151	28	179	.....	Notification dated 11th May 1877.
	Rhotas ...	37	.....	37		
					216	
Sunderbuns ditto ...	Sunderbuns ..	1,581	... ..	1,581		
					1,581	
Chittagong ditto ..	Maini	339	... ..	339		
	Sitapahar	8	...	8		
	Matamahari ...	223	.....	223		
					570	
Singbhoom ditto ...	Sarandapir ...	400	.....	400	400	
Hazaribagh	Koderma ...	60	...	60	60	
Sonthal Pergunnahs ...	Damin-i-koh ...	40	.....	40	40	
	Total .	3,390	40	3,430	3,430	

ANNUAL FORM No. 45.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Unreserved Forests, 1877-78.

Division or Range.	Area on 1st April 1877.	Excluded or transferred to other heads	Total on 31st March 1878.	Number and date of Notification of additions and transfers, &c.	Remarks
	Square miles.	Square miles	Square miles.		
Darjeeling Division	.. ...	.. ...	.....	.. .	Only forests from which the Forest Department derives revenue have been included
Julpigoree ditto	20	12	8	Notification dated 9th July 1877.	
Chittagong ditto	5,100	.....	5,100	. ...	
Total ...	5,120	12	5,108		

Annual Form No. 46.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Plantations, 1877-78.

Division.	Name of Plantation.	On 1st April 1877.		During 1877-78.		On 31st March 1878.		Remarks.
		Area.	Total cost.	Area added.	Cost.	Total area.	Total cost.	
		Acres.	Rs. A. P	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Darjeeling Divn.	Rungbul plantation ...	144	13,234 2 0	.....	786 7 0	144	14,020 9 0	
	Rungirum, Spanish chestnut	3	632 14 6	2	315 1 6	5	948 0 0	
Kurseong „	Dhobijhora	42	32 0 0	.....	.....	42	32 0 0	
	Bamunpokri	155	23,536 6 3	60	4,581 6 7	215	28,117 12 10	
	Sibhok, India-rubber ...	.....	337 13 0	.....	30 4 0	.....	368 1 0	
Julpigoree „	Fallacotta	3	216 12 11	.....	13 0 0	3	229 12 11	
Buxa „	....	2	577 0 0	34	562 0 0	36	1,139 0 0	Not shown in last year's statement, but now entered.
Sunderbuns „	Baobab	1	55 12 11	.....	35 1 10	1	90 14 9	
	Bamboo	.....	.....	1	110 7 6	1	110 7 6	Plants all dead.
Chittagong „	Sitapahar	171	14,372 4 3	14	4,993 14 8	185	19,366 2 11	
	Pahartulli	5	324 14 6	.....	.....	5	324 14 6	
	Total ...	526	53,320 0 4	111	11,427 11 1	637	64,747 11 5	

Annual Form No. 47.

FOREST DEPARTMENT, BENGAL.

Area of Forest Tracts protected from fire during the dry season of 1877-78.

Division.	Forest Tracts.	Up to 30th June 1877.		During dry season of 1877-78.				Total cost up to 31st May 1878.	Year when protection commenced.	Remarks.
		Area actually protected.	Total cost.	Area attempted to be protected.	Failures.	Area actually protected.	Amount expended.			
			Rs. A. P.				Rs. A. P.	Rs. A. P.		
Darjeeling ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Fires occur perhaps once every twenty years in this division. There were none during the year.
Kurseong ...	Sibhok	1,554	484 1 6	1,554	1,554	.....	101 12 9	585 14 3		
	Bamunpokri ...	1,373	1,212 14 0	1,373	.....	1,373	925 15 0	2,138 13 0	1876-77	Expenditure entered under demarcation.
Julpigoree ...	Muraghat	10,900	260 6 0	10,900	5,900	5,000	.....	260 6 0	.....	
Buxa ...	Buxa reserve ...	47,300	288 4 9	91,100	35,440	55,660	794 3 6	1,082 8 3	1876-77	
	Bholka	.....	.....	12,800	1,000	11,800	141 8 0	141 8 0		
Sunderbuns ...	Baobab plantation ...	.....	.....	1	.....	1	.....	.....		*Expenditure included under plantation.
Chittagong ...	Sitapahar	5,000	.....	5,000	.....	5,000	.....	.....	†.....	† Expenditure appears under plantation.
	Total ...	66,127	2,245 10 3	1,22,728	43,894	78,834	1,963 7 3	4,209 1 0		

Note.—This form is for the dry season, and not for the financial year, and therefore the date up to which expenditure is included must be filled in to suit the circumstances of each province.

ANNUAL FORM No. 48.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Prosecutions for breaches of Forest Rules, 1877-78.

FOREST DIVISION AND CIVIL DISTRICT.	Injury to forests by fire.		Unauthorized felling or appropriation of wood and minor forest produce.		Other offences.		TOTAL.				REMARKS.
							Prosecutions.		Convictions.		
	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
Darjeeling Division— Darjeeling district	.....	.....	2	11	.....	.....	2	11	2	11	
Kurseong Division— Darjeeling district	.....	.....	3	5	.....	.....	3	5	3	5	
Julpigoree Division— Julpigoree district	.....	.....	1	8	.....	.....	1	8	.....	.....	
Buxa Division— Julpigoree district	1	2	2	2	1	1	4	5	4	5	
Sunderbuns Division— Jessore district ...	.....	.....	131	131	7	8	138	139	26	26	Of the total number of 138 cases involving 139 prosecutions, 114 cases involving 115 men were balance from last year. The difference between prosecutions and convictions is explained as follows:— 17 cases ... 17 persons withdrawn. 55 cases ... 56 persons discharged. 17 cases ... 17 persons not found. 28 cases ... 28 persons pending.
Chittagong Division— Chittagong district	.....	.....	.....	.....	7	8	7	8	2	2	
Total ...	1	2	139	157	15	17	155	176	37	49	

ANNUAL FORM No. 49.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Summary of Revenue and Expenditure of the different Divisions, 1877-78.

(STATEMENT OF ACTUALS, 1877-78.)

BUDGET HEADS.	DIRECTION.		DARJEELING DIVISION.		TEESTA DIVISION.	KURSEONG DIVISION.	JULPIGOREE DIVISION.		BUXA DIVISION.	PALAMOW DIVISION.		SOONDERBUNS DIVISION.		CHITTAGONG DIVISION.		Civil officers' payment, Nya Doomka.	TOTAL.	
	Budget estimate.	Actual.	Budget estimate.	Actual.	Actual.	Actual.	Budget estimate.	Actual.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.		Budget estimate.	Actual.
RECEIPTS.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs.	Rs. A. P.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs. A. P.	Rs.	Rs. A. P.
I.—Timber and other produce removed from the forests by Government agency:—																		
a. Timber	.....	.....	.....	686 4 0	1,225 0 0	82,297 1 10	.....	9,806 8 7	33,887 10 9	.....	.....	.....	625 0 0	.....	.....	.....	.....	1,28,537 9 2
b. Firewood and charcoal	.....	.....	.....	41,983 11 2	.....	233 3 3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41,316 14 5
c. Bamboos	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	379 2 9	.....	.....	.....	.....	.....	.....	379 2 9
II.—Timber and other produce removed from the forests by consumers or purchasers:—																		
a. Timber	.....	.....	.....	5,956 0 9	225 0 0	6,631 14 6	.....	1,928 0 0	2,724 2 0	.....	18 12 0	.....	48,211 2 6	.....	10,955 15 0	.....	.....	76,650 14 9
b. Firewood and charcoal ...	.....	.....	...	126 5 0	.....	5,144 10 7	.....	24 0 0	92 8 0	.....	0 15 0	.....	85,370 7 0	.....	.....	.....	.....	90,758 13 7
c. Bamboos	.....	.....	.....	261 8 0	75 15 2	851 11 6	.....	3 0 0	35 0 2	.....	11 4 0	.....	.....	.....	28,102 10 9	.....	.....	29,342 1 7
d. Grazing and fodder grass ...	.....	.....	.....	1,454 8 0	109 4 6	1,215 3 0	.....	303 12 0	198 14 0	.....	375 1 6	.....	.....	.....	.....	.....	.....	3,686 11 0
e. Other minor produce	.....	.....	.....	42 0 0	22 6 4	479 8 9	.....	78 0 0	45 2 11	.....	188 2 3	.....	39,574 15 0	.....	17,060 2 0	.....	.....	57,460 5 3
III.—Confiscated, drift, and waif wood ...	.....	.....	.....	.....	.....	183 4 6	.....	214 4 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	397 8 6
V.—Miscellaneous:—																		
a. Fines and forfeitures	.....	.....	.....	4 0 0	.....	145 0 0	.....	45 12 0	6 0 0	.....	.....	.....	94 12 3	.....	.....	.....	.....	295 8 3
b. Refunds	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 13 6	.....	1,119 2 6	.....	.....	1,131 0 0
c. Other sources	.....	60 0 0	.....	146 1 1	287 0 0	1,269 0 0	.....	177 0 0	163 12 6	.....	62 9 8	.....	110 9 9	.....	140 0 1	.....	.....	2,416 1 1
Total Receipts ...	.....	60 0 0	.....	49,790 6 0	1,945 10 0	98,450 9 11	.....	12,580 4 7	37,153 2 4	.....	1,005 15 2	.....	1,73,988 12 0	.....	57,377 14 4	.....	.....	4,32,362 10 4
EXPENDITURE.																		
A.—Conservancy and Works.																		
I.—Timber and other produce removed from the forests by Government agency:—																		
a. Timber	.....	.....	12,000	529 4 0	1,092 6 11	24,365 2 7	5,000	3,188 9 4	32,703 6 5	.....	.....	.....	406 4 0	.....	.....	.....	37,000	62,276 1 3
b. Firewood and charcoal ...	.....	16 0 0	15,000	27,428 0 1	.....	151 8 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,000	27,595 8 7
c. Bamboos	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60 10 0	.....	.....	.....	.....	.....	.....	60 10 0
II.—Timber and other produce removed from the forests by consumers or purchasers	.....	.....	100	.....	.....	.....	50	.....	.....	.....	.....	10,000	13,756 12 7	.....	.....	.....	10,150	13,756 12 7
III.—Confiscated, drift, and waif wood ...	.....	.....	100	.....	.....	.....	50	72 14 0	.....	.....	.....	.....	.....	.....	.....	.....	150	72 14 0
VI.—Live and dead stock:—																		
a. Purchase of cattle	.....	.....	.....	.....	.....	.....	.....	.....	20 0 0	.....	.....	.....	.....	.....	.....	.....	.....	20 0 0
b. Feed and keep of cattle ...	.....	42 3 1	1,600	.....	.....	1,414 8 5	4,000	1,833 5 5	3,178 9 6	300	440 8 6	.....	.....	800	.....	.....	6,700	6,909 2 11
c. Plant, tools, and instruments	400	200 0 0	400	58 6 0	59 0 0	173 15 3	300	102 9 6	209 9 3	50	1 8 0	2,500	2,869 10 11	100	650 15 0	.....	3,750	4,615 9 11

VII.—Communications and buildings :—																		
a. Roads and bridges	.....	.....	800	11 12 0	185 2 0	1,659 11 6	500	6 8 0	639 5 3	.....	.....	.....	.....	500	367 2 0	.....	1,800	3,989 8 9
b. Buildings	.....	4 0 0	1,640	679 12 3	84 0 0	539 2 6	500	127 13 9	185 12 3	2,000	255 7 9	300	238 15 0	500	100 15 6	.....	4,900	2,815 15 0
VIII.—Demarcation, improvement, and extension of forests :—																		
a. Demarcation	.....	.....	3,000	278 8 0	967 11 5	2,149 11 6	500	1,244 11 5	1,509 9 0	500	1,098 2 0	100	1 0 0	200	22 15 0	.....	4,300	7,278 4 4
b. Compensation for land and rights	.....	.....	2,500	.....	1,777 0 0	975 0 0	.....	.....	97 1 0	.....	.....	.....	.....	.....	.....	.....	2,500	2,849 1 0
c. Surveys and working-plans ...	600	267 11 9	.....	0 9 0	.....	.....	.....	.....	.....	200	.....	.....	.....	300	.....	.....	1,100	268 4 9
d. Plantations	.....	.....	4,300	1,101 8 6	.....	4,611 10 7	10	13 0 0	562 0 0	.....	.....	200	145 9 4	6,000	4,993 14 8	.....	10,510	11,427 11 1
e. Protection from fire	.....	.....	400	.....	.....	1,138 1 3	300	.....	688 0 9	200	.....	.....	.....	.....	.....	.....	900	1,826 2 0
f. Other works	.....	.....	1,000	15 8 0	.....	202 2 0	1,000	.....	30 4 6	300	.....	.....	.....	.....	.....	.....	2,300	247 14 6
IX.—Miscellaneous :—																		
a. Refunds	.....	.....	10	.....	18 0 0	.....	10	.....	.....	.....	.....	100	157 6 9	.....	200 0 0	.....	120	385 6 9
b. Law charges	.....	.....	10	.....	.....	0 8 9	10	.....	.....	.....	.....	240	251 0 6	.....	.....	.....	260	251 9 3
c. Other charges	.....	.....	180	1,253 0 8	97 4 0	171 7 0	150	10 0 0	5 8 0	50	4 2 0	100	27 11 2	100	249 13 3	.....	560	1,518 13 1
Total A.—Conservancy and Works ...	1,000	719 14 10	43,000	31,347 4 6	4,380 8 4	37,552 9 10	32,360	6,599 7 5	39,849 1 11	3,600	1,860 6 3	13,540	17,864 6 3	8,500	6,585 10 5	.....	1,02,000	1,46,759 5 9
B.—Establishments.																		
I.—Salaries :—																		
a. Conservators	.....	14,400 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14,400 0 0
b. Superior officers	.....	1,875 0 0	.....	2,550 0 0	3,151 9 9	3,485 7 9	.....	6,000 0 0	4,200 0 0	.....	9,600 0 0	.....	4,200 0 0	.....	8,578 11 9	.....	.....	43,640 13 3
c. Subordinate forest and depôt establishments...	.....	.....	.....	1,352 8 2	897 11 10	2,744 0 2	.....	2,070 6 6	4,411 15 7	.....	2,221 9 10	.....	9,321 6 11	.....	8,435 5 0	102 0 0	.....	31,556 15 6
d. Office establishments	.....	4,217 14 1	.....	802 2 2	224 10 8	581 0 3	.....	752 0 6	475 10 8	.....	375 11 11	.....	1,269 2 6	.....	1,290 4 6	.....	.....	9,983 9 3
II.—Travelling allowances :—																		
a. Conservators	.....	1,428 3 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,428 3 0
b. Superior officers	.....	441 13 0	.....	259 8 0	1,282 0 0	1,225 8 0	.....	863 9 0	1,163 6 0	.....	1,516 14 0	.....	263 8 0	.....	1,952 12 9	.....	.....	8,967 14 9
c. Subordinate forest and depôt establishments...	.....	.....	.....	53 0 10	74 3 7	104 5 10	.....	6 0 0	237 7 2	.....	.....	.....	.....	.....	.....	.....	.....	475 1 7
d. Office establishments	.....	187 5 9	.....	12 15 4	27 1 6	64 15 7	.....	16 1 4	79 2 2	.....	95 12 8	.....	14 5 10	.....	120 11 5	.....	.....	618 7 5
III.—Contingencies :—																		
a. Stationery	.....	2 8 0	.....	.....	.....	0 9 0	.....	.....	7 7 6	.....	10 14 6	.....	3 0 0	.....	.....	.....	.....	24 7 0
b. Carriage of tents and records...	.....	28 1 6	.....	43 7 0	75 3 0	15 5 0	.....	.....	5 8 0	.....	278 10 8	.....	.....	.....	4 8 0	.....	.....	450 11 2
c. Pay of police guards	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	344 14 11	.....	.....	.....	.....	344 14 11
d. Sundries	.....	784 2 3	.....	234 11 0	69 9 0	121 9 0	.....	184 9 10	144 4 5	.....	111 5 8	.....	49 7 5	.....	112 6 0	.....	.....	1,813 1 4
e. Official postage	.....	237 5 0	.....	36 5 0	5 13 6	33 12 0	.....	53 11 6	85 7 0	.....	16 14 0	.....	121 13 6	.....	51 2 6	.....	.....	643 3 6
Total B.—Establishments ...	.....	23,602 4 7	.....	5,344 9 6	5,807 15 1	8,377 8 7	.....	9,946 6 2	10,809 4 6	.....	14,227 13 3	.....	15,583 11 1	.....	20,545 13 11	102 0 0	.....	1,14,352 6 8
Grand Total of Expenditure ...	.....	24,322 3 5	.....	36,691 14 0	10,188 7 5	45,930 2 0	.....	16,545 13 7	50,658 6 5	.....	16,088 3 6	.....	33,453 1 4	.....	27,131 8 4	102 0 0	.....	2,61,111 12 5

Annual Form No. 50—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Account Current for the year 1877-78.

Dr.

	Rs. A. P.	Rs. A. P.
To cash in hand on the 1st April 1878 ...	5,281 1 8	5,281 1 8
„ Revenue received	4,32,862 10 4	4,32,862 10 4
„ Remittances from State Treasuries ...	2,61,419 8 11	2,61,419 8 11
„ Remittance by transfer from the Government Mathematical Instrument Department	141 5 0	141 5 0
„ Remittance by transfer from the Military Department, Bengal	2 12 11	2 12 11
„ Advances recoverable	89,489 2 5	89,489 2 5
„ Recovery of advances made by the Accountant-General, Bengal	100 0 0	100 0 0
„ Recoveries of permanent advances ...	200 0 0	200 0 0
„ Provincial Services—Police	307 14 11	307 14 5
„ Deposits	977 14 5	977 14 5
„ Divisional transfers	769 4 9	769 14 9
„ Suspense account	186 2 10	186 2 10
„ Government of India—Fund Deductions, Uncovenanted Service Family Pension Fund	1,275 11 0	1,275 11 0
Total ...		7,92,513 9 2

Cr.

	Rs. A. P.	Rs. A. P.	Rs. A. P.
By expenditure ... { A 1,46,759 5 9 ... / B 1,14,352 6 8 ... }	2,61,111 12 5		2,61,111 12 5
„ Remittances to Public Treasuries ...	3,30,873 5 4		3,30,873 5 4
„ Remittances to Executive Commissariat Officer, Darjeeling, by transfer	13,561 9 3		
„ Remittances to the Northern Bengal State Railway by transfer ...	74,412 4 9		
„ Remittances to Public Works Department, Civil Works, by transfer ...	18,514 7 2		
„ Remittances to Public Works Department, Military Works, by transfer	93 14 0		
„ Remittances to Mathematical Instrument Department by transfer ...	87 8 0		1,06,668 11 2
„ Government of India, 28 Miscellaneous, Rewards for proficiency in Oriental languages	540 0 0		540 0 0
„ Suspense account	80 10 9		80 10 9
„ Account current with London—Cash recovered from Mr. H. H. Davis, Assistant Conservator of Forests, Chittagong Division, overpaid in India. Comptroller-General's supplementary account current for March 1878.	8 5 9		8 5 9
„ Deposits repaid	968 3 1		968 3 1
„ Transfer charges in reduction of realization of revenue	6,135 11 8		6,135 11 8
„ Divisional transfers	769 4 9		769 4 9
„ Advances recoverable	84,302 14 7		84,302 14 7
Closing balance on 31st March 1878 ...	1,054 9 8		1,054 9 8
Total ...		.....	7,92,513 9 2

Annual Form No. 51.—[*Prescribed*].

FOREST DEPARTMENT, BENGAL.

Statement of Outstandings and Liabilities on account of the year 1877-78.

Division.	Department Debtor.			Department Creditor.			Balance Due.	
	At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (Outstandings).	By Department (Liabilities).
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	.....	325 6 10*	325 6 10	.....	406 7 0	406 7 0	81 0 2	.....
		50 0 0	50 0 0*					
Darjeeling division	.....	10,659 0 1	16,193 1 1	8,250 8 8	8,164 2 6	21,485 10 8	52 3 2	5 0 0
Teesta ditto		2,343 0 4			2,246 4 9		3 4 5	
Kurseong ditto		3,190 7 8			2,824 10 9		5,237 2 0	
Julpigoree ditto	(a)2,750 10 1	12,373 13 6	37,605 4 5	6,262 6 4	15,364 10 9	40,335 5 1	2,012 10 10	2,750 10 1
					18,708 4 0			
Buxa ditto		23,231 6 11	(a)2,750 10 1		(a)2,750 10 1	(a)2,750 10 1	717 5 10	
Palamow ditto	.....	3,773 11 6	3,773 11 6	375 5 7	4,193 5 4	4,567 10 11	794 15 5	.....
Sunderbuns ditto	.....	19,581 15 10	19,581 15 10	1,367 11 7	19,429 8 8	20,797 4 3	1,215 4 5	.....
Chittagong ditto	.....	12,010 10 9	12,010 10 9	711 3 6	13,016 8 10	13,727 12 4	1,717 1 7	.....
Dacca (late)	.....	.....	.....	12 0 0	.....	12 0 0	12 0 0	.....
Total ...	2,750 10 1	89,539 2 5	92,289 12 6	16,979 3 8	87,103 8 8	1,04,082 12 4	11,792 15 10	2,755 10 1

* Rs. 50 recovered from Baboo Nil Comul Chuckerbutty by deduction from pay bill in Buxa Division.

(a) This sum of Rs. 2,750-10-1, when paid to the contractors, was charged to a budget head, and not to advances recoverable, as it was held in deposit by short payments for work done during a previous year, and then finally adjusted, as above stated, to a budget head in 1877-78.

ANNUAL FORM No. 52.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Outstandings on account of Revenue, 1877-78.

DIVISION.	PARTICULARS.	Outstandings at commencement of year.	Value of sales and other revenue during year.	Total.	Amount realized during year.	Balance due to the Department at end of year.	REMARKS.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Direction	Auction sale at Shukna.	.....	60 0 0	60 0 0	60 0 0	.....	
Darjeeling		.....	50,487 6 9	50,487 6 9	49,790 6 0	697 0 9	Rs. 31-12-0 due by Commissariat Department for firewood, and Rs. 665-4 by Executive Engineer, Darjeeling Division, for firewood.
Teesta		.....	1,945 10 0	1,945 10 0	1,945 10 0	.....	
Kurseong		667 0 0	97,978 9 11	98,645 9 11	98,450 9 11	195 0 0	Due by Executive Engineer, Ganges and Darjeeling Road Division, for 16 sál logs.
Julpigoree		374 0 0	12,564 4 7	12,938 4 7	12,580 4 7	358 0 0	Rs. 352 due by Executive Engineer, Darjeeling Division; Rs. 6 by District Engineer, Julpigoree.
Buxa		36 0 0	37,153 2 4	37,189 2 4	37,153 2 4	36 0 0	Due by Assistant Commissioner, Buxa.
Palamow		196 11 2	873 12 7	1,070 7 9	1,005 15 2	64 8 7	
Sunderbuns		.....	1,73,998 12 0	1,73,998 12 0	1,73,998 12 0	.....	
Chittagong		.....	57,377 14 4	57,377 14 4	57,377 14 4	.....	
	Total ...	1,273 11 2	4,32,439 8 6	4,33,713 3 8	4,32,362 10 4	1,350 9 4	

ANNUAL FORM No. 53.

FOREST DEPARTMENT, BENGAL.

Statement of Trees felled during the year 1877-78.

DIVISION.	Forest range.	Locality.	Description of trees.	Felled during current year.	Total.	Disposed of during current year.		Closing balance
				No.	No.	How disposed of.	No.	No.
Darjeeling	Rungbul	Rungbul	Booke	139	139	Converted into firewood	139	.....
			Katoos	38	38		38	.....
			Bhudrassi	25	25		25	.....
			Phalat	105	105		105	.....
			Myah	11	11		11	.....
			Lali	233	233		233	.....
			Doodoola	12	12		12	.....
			Kharani...	22	22		22	.....
			Pyla	63	63		63	.....
			Dubdubia	17	17		17	.....
			Lepcha'al	1	1		1	.....
			Kawla	80	80		80	.....
			Kabashi...	39	39		39	.....
			Jingni	3	3		3	.....
			Sissi	6	6		6	.....
		Dooteria	Kabashi...	195	195		195	.....
			Phalat	266	266		266	.....
			Booke	482	482		482	.....
			Myah	2	2		2	.....
			Pyla	18	18		18	.....
			Katoos	8	8		8	.....
			Sissi	2	2		2	.....
			Kharani...	6	6		6	.....
			Bhudrassi	2	2		2	.....
			Doodoola	3	3		3	.....
			Lali	79	79		79	.....
			Dubdubia	2	2		2	.....
		Senchal	Booke	17	17		17	.....
			Phalat	6	6		6	.....
			Pyla	44	44		44	.....
			Total trees felled for firewood	1,926	1,926		1,926	.....

Annual Form No. 53—*continued.*

Division.	Forest range.	Locality.	Description of trees.	Felled during current year. No.	Total. No.	Disposed of during current year. How disposed of.	Disposed of during current year. No.	Closing balance. No.
Darjeeling—*contd.* ...	Rungbul—*contd.* ...	Booteria	Kabashi...	19	19	Converted into charcoal	19	.....
			Kawla	78	78		78	.....
			Myah	81	81		81	.....
			Pyla	273	273		273	.....
			Katoos	89	89		89	.....
			Sissi	78	78		78	.....
			Jingni	8	8		8	.....
			Kharani...	136	136		136	.....
			Khoorsani	4	4		4	.....
			Bhudrassi	15	15		15	.....
			Doodoola	37	37		37	.....
			Lali	1,116	1,116		1,116	.....
			Thalay	4	4		4	.....
			Dubdubia	49	49		49	.....
			Lissia	2	2		2	.....
			Phoosria	1	1		1	.....
			Khanakpa	12	12		12	.....
			Gobria	3	3		3	.....
			Chinday...	1	1		1	.....
		Senchal	Booke	5	5		5	.....
			Kawla	11	11		11	.....
			Doodoola	1	1		1	.....
			Katoos	22	22		22	.....
			Phalat	1	1		1	.....
			Sissi	1	1		1	.....
			Kabashi...	1	1		1	.....
			Pyla	1	1		1	.....
		Pomong	Phalat	11	11		11	.....
			Booke	9	9		9	.....
			Kharani...	30	30		30	.....
			Pyla	97	97		97	.....
			Lepchafal	14	14		14	.....
			Bungset...	2	2		2	.....
			Laticout	2	2		2	.....
			Doodoola	6	6		6	.....
			Kawla	31	31		31	.....
			Myah	7	7		7	.....
			Lampatia	3	3		3	.....
			Chinday...	9	9		9	.....
			Haray	1	1		1	.....
			Sincouli...	1	1		1	.....
			Lali	41	41		41	.....
			Bhudrassi	1	1		1	.....
			Pakray	1	1		1	.....
			Thalay	25	25		25	.....
			Kabashi...	10	10		10	.....
			Dubdubia	4	4		4	.....
			Cholouni	8	8		8	.....
			Gobria	9	9		9	.....
			Tarsing	1	1		1	.....
			Total trees felled for charcoal	2,372	2,372		2,372	.....
			Grand total of trees felled	4,298	4,298		4,298	.....
Kurseong	Sankna	Choklong and Goolma ...	Green sál	815	815	Cut into sleepers ...	813	2
		Jogeejhora	Ditto	4	4	Ditto	4	.....
		Berlok and Latpanchor ...	Ditto	2	2	Telegraph masts ...	2	.....
		Nunmatti	Ditto	14	14	Cut into logs	14	.....
		Gorroomara	Ditto	57	57	Ditto & sleepers	57	.....
		Gulma	Hurra	4	4	Cut into logs	4	.....
		Kooklong	Green sál	28	28	Ditto	28	.....
	Bamunpokri ...	Lamagumba	Ditto	180	180	Ditto & sleepers	180	.....
		Bamunpokri	Ditto	25	25	.....	.....	25
			Jamun	3	3	Cut into scantlings ...	3	.....
			Tatri	3	3	Ditto ...	3	.....
			Gumbhari	4	4	Ditto ...	4	.....
			Kunkur	6	6	Ditto ...	6	.....
			Teak	8	8	For specimen	8	.....
			Total ...	1,153	1,153		1,126	27
Julpigoree	Muraghat	Muraghat	Sál	100	100	Cut into logs and sleepers and sold	100	.....
	Tundu Reserve ...	Lataguri	Sál	43	43		43	.....
		Lower Tundu	Sál	277	277		277	.....
			Total ...	420	420		420	.....
Buxa	Buxa	Block III, Compartment 7	Sál	84	84	.....	84	.....
			Sissu	338	338	.....	338	.....
		Ditto do. 8	Sál	1,143	1,143	.....	1,143	.....
			Sissu	7	7	.....	7	.....
		Ditto do. 9	Sál	20	20	.....	20	.....
			Sissu	19	19	.....	19	.....
		Ditto do. 10	Sál	399	399	.....	399	.....
			Sissu	79	79	.....	79	.....
		Ditto do. 11	Sál	679	679	.....	679	.....
			Total ...	2,768	2,768		2,768	.....
Sunderbuns	Khoolna block... ...	Seepsa and Koyra rivers...	Sundri posts	2,000	2,000	Made over to N. B. S. Railway	2,000	.....
			Total ...	2,000	2,000		2,000	.....

ANNUAL FORM No. 54.

FOREST DEPARTMENT, BENGAL.

Statement of Logs, Sleepers, and other Scantlings cut and exported during the year 1877-78.

Division.	Forest range.	Locality.	Description of timber and scantlings.	On hand from previous year.		Cut during current year.		Total.		Disposed of during current year.			Closing balance.		Remarks.
				No.	C. ft.	No.	C. ft.	No.	C. ft.	How disposed of.	No.	C. ft.	No.	C. ft.	
Darjeeling ...	Rungbul	Rungbul	Fenders	.....	.....	2,036	4,442	2,036	4,442	Sold to Public Works Department.	2,036	4,442	.....	.....	
			Oak pieces	.....	.....	2	41	2	41	Sold to Jail Department ...	2	41	.....	.....	
			Total ...	.....	.....	2,038	4,483	2,038	4,483		2,038	4,483	.....	.....	
		Dooteria	Firewood	.....	.....	Mds. 86,841		Mds. 86,841		Brought to depôt	Mds. 86,841		.....	.....	
		Rungbul	Do.	.....	.....	" 84,844		" 84,844		Ditto	" 84,844		.....	.....	
		Do. and Pomong	Charcoal	.....	.....	" 6,238-16		" 6,238-16		Ditto	" 6,238-16		.....	.....	
			Total ...	.....	.....	Mds. 1,77,923-16		Mds. 1,77,923-16			Mds. 1,77,923-16		.....	.....	
Teesta ...	Teesta	Peshok	Sál logs	.....	.....	85	3,281	85	3,281	Brought to depôt and cut into sleepers.	85	3,281	.....	.....	
			N. g. sál sleepers	.....	.....	1,072	1,430	1,072	1,430	Brought to depôt	1,072	1,430	.....	.....	
			Do. rejected	.....	.....	206	275	206	275	Ditto	206	275	.....	.....	
			Total ...	.....	.....	1,363	4,986	1,363	4,986		1,363	4,986	.....	.....	
Kurseong ..	Shukna	Choklong	Sál n. g. sleepers	.....	.....	23,555	31,407	23,555	31,407	Sent to Patalpore	21,953	29,271	767	1,023	
										Brought to depôt	835	1,113			
		Gulma	Ditto	.....	.....	1,812	2,415	1,812	2,415	Brought to depôt	184	245	1,628	2,170	
		Do.	Hurra n. g. sleepers ...	.....	.....	25	33	25	33	Taken to depôt	25	33	.....	.....	
		Goroomara	Sál ditto	.....	.....	418	557	418	557	Brought to depôt	418	557	.....	.....	
		Shukna	Ditto	1,542	2,056	5,606	7,474	7,148	9,530	Made over to Railway ...	3,371	4,495	285	380	
										Brought to depôt	3,492	4,655			
		Do.	Sál logs	139	4,657	10	203	149	4,860	Taken to depôt	76	2,647	72	2,180	
										Sold to Public Works Department.	1	33			
		Berik Hills	Do.	.....	.....	47	1,636	47	1,636	.....	5	158	42	1,478	
		Koolong	Do.	.....	.....	29	807	29	807	.....	.....	.....	29	807	
		Goroomara	Do.	.....	.....	71	1,895	71	1,895	.....	.....	.....	71	1,895	
		Noonmatti	Do.	.....	.....	17	357	17	357	.....	.....	.....	17	357	
		Champasari	Jhangies	.....	.....	200	.....	200	.....	Carted to Patalpore	38	.....	162	.....	
		Shibok	Ditto	.....	.....	363	.....	363	.....	Brought to depôt	200	.....	163	.....	
	Bamunpokri	Lamagumba	Sál logs	.....	.....	259	8,866	259	8,866	Sold to Public Works Department.	255	8,696	4	170	
			B. g. sleepers	.....	.....	100	312	100	312	Sent to Patalpore	100	312	.....	.....	
			Bed plates 10′ × 12″ × 6″ ...	.....	.....	23	115	23	115	Ditto	23	115	.....	.....	
		Bamunpokri	Tairi	.....	.....	18	30	18	30	Cut into scantlings and taken to Rukti.	18	30	.....	.....	
			Jamun	.....	.....	24	40	24	40		24	40	.....	.....	
			Kunkur	.....	.....	10	24	10	24		10	24	.....	.....	
			Gambhari	.....	.....	25	61	25	61		25	61	.....	.....	
	Balasun	Dulkajhar	Sál logs	.....	.....	11	501	11	501	Taken to Tirrihanna ...	11	501	.....	.....	
			Jhangies	.....	.....	50	.....	50	.....		50	.....	.....	.....	
			Total ...	1,681	6,713	32,673	56,733	34,354	63,446		31,114	52,986	3,240	10,460	
Kurseong ...	Bamunpokri ...	Bamunpokri plantation	Firewood	.....	.....	Mds. 428	.....	Mds. 428	.....	Taken to depôt	Mds. 428	.....	.....	.....	
	Shukna ...	Shukna depôt	Ditto	.....	.....	600	.....	600	.....	Ditto	600	.....	.....	.....	
		Ditto	Charcoal	.....	.....	20	.....	20	.....	Ditto	20	.....	.....	.....	
			Total ...	.....	.....	1,048	.....	1,048	.....		1,048	.....	.....	.....	

ANNUAL FORM No. 54.—*continued.*

Division.	Forest range.	Locality.	Description of timber and scantlings.	On land from previous year. No.	On land from previous year. C. ft.	Cut during current year. No.	Cut during current year. C. ft.	Total. No.	Total. C. ft.	Disposed of during current year. How disposed of.	Disposed of during current year. No.	Disposed of during current year. C. ft.	Closing balance. No.	Closing balance. C. ft.	Remarks.
Julpigoree ...	Julpigoree depôt	Julpigoree	Toon log	1	21	.....	.....	1	21	Cut into planks	1	21	.....	.....	
			Sorol "	1	22	.....	.....	1	22	Ditto	1	22	.....	.....	
			Sissu "	5	58	.....	.....	5	58	Sold	5	58	.....	.....	
			Sál sleepers n. g.	.....	.....	3,965	.....	3,965	.....	Sold to N. B. S. Railway.	3,323	.....			
			Do. planks	.....	.....	97	.....	97	.....	Cut into planks.	15	.....	627	.....	
			Do. slabs	.....	.....	699	.....	699	.....	Sold	49	.....	48	.....	
			Do. ends	.....	.....	332	.....	332	.....	Do.	673	.....	24	.....	
			Sorol planks	.....	.....	17	.....	17	.....	Do.	42	.....	290	.....	
			Toon "	.....	.....	154	.....	154	.....	Do.	6	.....	11	.....	
			Huldi "	.....	.....	11	.....	11	.....	Do.	3	.....	151	.....	
	Apalchand	Apalchand	Sál logs	195	3,478	231	4,403	426	7,881	Used by department ...	1	.....	10	.....	
			Sál "	.....	.....	118	.....	118	.....	Sold and cut into sleepers ...	426	7,881	.....	.....	
	Tundu	Lataguri	Do. sleepers n. g.	.....	.....	2,123	.....	2,123	.....	Cut into sleepers	107	.....	11	.....	
			Do. " b. g.	.....	.....	100	.....	100	.....	Taken to Julpigoree	2,111	.....	12	.....	
			Do. slabs	.....	.....	214	.....	214	.....	Ditto	57	.....	43	.....	
			Do. ends	.....	.....	90	.....	90	.....	Sold...	30	.....	184	.....	
	Muraghat	Dudua	Do. logs	.....	.....	100	2,314	100	2,314	Do.	6	.....	84	.....	
		Muraghat	Do. "	40	1,933	.....	.....	40	1,933	Sold and taken to depôt ...	100	2,314	.....	.....	
			Do. sleepers	42	140	.....	.....	42	140	.....	.....	.....	40	1,933	
			Do. scantlings	44	.....	.....	.....	44	.....	.....	.....	.....	42	140	
										.....	.....	.....	44	.....	
			Total ...	328	.....	8,251	.....	8,579	.....	Total ...	6,956	.....	1,623	.....	
Buxa ...	Buxa	Block III Compartment No. 2 ...	Sál logs	18	.....	.....	.....	18	.....	Dragged to Buxa forest depôt.	18	.....	.....	.....	
		Do. do. " 3 ...	Do. "	53	.....	.....	.....	53	.....		33	.....	20	.....	
			Sissu "	55	.....	.....	.....	55	.....		.....	.....	55	.....	
		Do. do. " 4 ...	Sál "	43	.....	.....	.....	43	.....		16	.....	27	.....	
			Sissu "	26	.....	.....	.....	26	.....		.....	.....	26	.....	
		Do. do. " 5 ...	Sál "	5	.....	.....	.....	5	.....		.....	.....	5	.....	
			Sissu "	116	.....	.....	.....	116	.....		.....	.....	116	.....	
		Do. do. " 6 ...	Sál "	5	.....	.....	.....	5	.....		5	.....	.....	.....	
		Do. do. " 7 ...	Do. "	255	.....	84	.....	339	.....		.....	.....	339	.....	
			Sissu "	.....	.....	387	.....	387	.....		7	.....	380	.....	
		Do. do. " 8 ...	Sál "	555	.....	1,409	.....	1,964	.....		760	.....	1,204	.....	
			Sissu "	.....	.....	7	.....	7	.....		.....	.....	7	.....	
		Do. do. " 9 ...	Sál "	1	.....	21	.....	22	.....		.....	.....	22	.....	
			Sissu "	337	.....	21	.....	358	.....		.....	.....	358	.....	
		Do. do. " 10 ...	Sál "	1,096	.....	501	.....	1,597	.....		662	.....	935	.....	
			Sissu "	244	.....	96	.....	340	.....		.....	.....	340	.....	
		Do. do. " 11 ...	Sál "	.....	.....	830	.....	830	.....		830	.....	.....	.....	
		24th mile road	Do. "	55	.....	.....	.....	55	.....		41	.....	14	.....	Seventeen dragged to Buxa forest depôt. Twenty-four taken to Alipore depôt.
		23rd do.	Do. "	56	.....	.....	.....	56	.....		22	.....	34	.....	
		22nd do.	Do. "	86	.....	.....	.....	86	.....		81	.....	5	.....	Sixty-nine to Buxa forest depôt. Twelve to Alipore depôt.
			Total ...	3,006	.....	3,356	.....	6,362	.....	Total ...	2,475	.....	3,887	.....	
Sunderbuns	Khoolna	Seepsa and Khoyra	Sundri posts	.....	.....	2,000	.....	2,000	.....	Sold to Northern Bengal State Railway.	2,000	.....	.....	.....	
			Total ...	.....	.....	2,000	.....	2,000	.....	Total ...	2,000	.....	.....	.....	

ANNUAL FORM No. 55.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Timber and other produce brought to Depôt from the different Forest Divisions, 1877-78.

Depôt.	Forest.	Description of Timber, &c.	Number of Pieces.	Number of Cubic feet.	Total of each Division. Pieces.	Total of each Division. Cubic feet.	Remarks.
		1.—TIMBER.					
		DARJEELING DIVISION.					
RUNGBUL	Rungbul	Fenders	2,036	4,442			
	Ditto	Oak pieces	2	41	2,038	4,483	
		TEESTA DIVISION.					
PESHOK	Peshok	Sâl logs	85	3,281			
	Ditto	„ n. g. sleepers	1,072	1,430			
	Ditto	„ rejected	206	275			
SIBHOK	Ditto	Sâl logs	45	983			
JULPIGOREE	Ditto	„ n. g. sleepers	872	1,163	.....	.....	Transferred from Peshok Depôt.
					2,280	7,132	
		KURSEONG DIVISION.					
SIBHOK	Berikh	Sâl logs	50	1,281			
	Ditto	Kalakhambas	240	.....			
SHUKNA	Mahanuddy	Sâl logs	59	1,847			
	Shukna	Kalakhambas	29	.....			
	Choklong and Gulma	Sâl n. g. sleepers	5,607	7,476			
	Gulma	Hurra ditto	25	33			
	Ditto	Sâl n. g. sleepers, rejected	921	1,228			
RAKTI	Found in depôt	Sissu logs	10	166			
	Bamunpokri	Kalakhambas	71	.....	.....	.....	64 transferred from Torrihannah.
	Lama Gumba	Sâl logs	255	5,696			
TERRIHANNAH	Dulkajhar	Ditto	22	776			
	Ditto	Kalakhambas	50	.....			
PATALPUR	Choklong and Gulma	Sâl n. g. sleepers	22,004	29,338			
	Ditto ditto	„ rejected	524	699			
	Lama Gumba	„ b. g. sleepers	100	310			
	Ditto	Red plates	23	115			
	Champasari	Kalakhambas	38	.....			
	Sibhok depôt	Sâl logs	20	650	.....	.....	Transferred from Sibhok Depôt.
	Ditto	Kalakhambas	25	.....	.....	.....	
	Ditto	Sâl n. g. sleepers	741	988	.....	.....	
JULPIGOREE	Sibhok	„ logs	58	2,311			
	Ditto	„ n. g. sleepers	677	903			
	Cut in depôt	„ slabs	64	.....			
	Ditto	„ ends	60	.....			
	Ditto	„ planks	8	.....			
	Ditto	Sissu ditto	28	.....			
	Teesta river	Sâl b. g. sleepers	53	184	31,762	57,001	
		JULPIGOREE DIVISION.					
JULPIGOREE	Teesta river	Toon logs	3	89			
	Ditto	Sâl „	7	248			
	Ditto	Boeri „	1	41			
	Ditto	Jhow „	1	37			
	Cut in depôt	Sâl ends	332	.....			
	Ditto	„ slabs	690	.....			
	Ditto	Norol planks	17	.....			
	Ditto	Huldi „	11	.....			
	Ditto	Toon „	154	.....			
	Ditto	Sâl „	94	.....			
	Apalchand	„ logs	224	4,170			
	Muraghat	Ditto	100	2,290			
	Julpigoree depôt and Tundu forest	„ n. g. sleepers	3,965	5,287	5,608	12,171	
		BUXA DIVISION.					
ALIPORE	Buxa	Sâl logs	255	8,933			
	Ditto	Sissu	23	835			
	Ditto	Miscellaneous	6	96			
	Ditto	Kalakhambas	157	.....			
	Ditto	N. g. sleepers	7,864	10,485			
	Cut in depôt	Ditto	6,569	8,758			
	Ditto	Ditto rejected	163	217			
	Ditto	Sâl slabs	666	.....			
	Ditto	„ pieces	290	.....			
GACHEEDANGA	Alipore depôt	„ logs	442	13,448	.....	.....	These have been transferred from Alipore Depôt, and not from the forest direct.
	Ditto	„ pieces	66	.....	.....	.....	
	Ditto	Kalakhambas	139	.....	.....	.....	
	Ditto	Sâl slabs	25	.....	.....	.....	
	Ditto	Scantlings	1	.....	.....	.....	
KAONI	Ditto	Sâl n. g. sleepers	11,997	15,995	.....	.....	
	Ditto	Ditto rejected	71	94	.....	.....	
					28,742	58,361	
		SOONDERBUNS DIVISION.					
SARA	Seepsah and Koyra	Sundri posts	2,000	750			
					2,000	750	
		Total Timbers	.....	.....	72,430	139,898	

Depôt.	Forest.	Description of Timber, &c.	Number of		Total of each Division.		Remarks.
			Pieces.	Cubic feet.	Pieces.	Cubic feet.	
	II.—FIREWOOD AND CHARCOAL.		Mds.		Mds.		
	Darjeeling Division.						
Darjeeling, Jellapahar, and Jore Bungalow.	Rungbul	Firewood	86,841	.....			This material was partly taken to the Darjeeling Depôt, and partly direct to the purchasers' houses.
	Dooteria	Ditto	84,844	.....	171,685	.....	
					Mds. Sr.		
	Rungbul, Dooteria, and Pomong	Charcoal	Mds. Sr. 6,238 16	.....	6,238 16		
		Total ...	.....	.....	1,77,923 16	.....	
	Kurseong Division.						
Bamunpokri ...	Bamunpokri	Firewood	428	.....			
Shukna ...	Shukna depôt	Ditto	600	.....	1,028	.....	
	Ditto	Charcoal	20	.....	20	.....	
		Total ...	.....	.....	1,048	.....	
		Total Firewood and Charcoal	.....	.....	Mds. Sr. 178,971 16	.....	

ANNUAL FORM No 56.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Account of Timber and other Produce, 1877-78.

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
By balance at commencement of year.					
Darjeeling Division		.....	.....	.....	.....
Teesta Division	Sál logs	46	3,069	46	3,069*
Kurseong Division	Sál logs	334	10,547		
	Sissu "	495	3,182		
	Khair "	2	14		
	B. g. sleepers	37	123		
	N. g. "	2,037	2,716		
	" " rejected	1,012	1,347		
	Scantlings	67	.....		
	Kalakhambas	356	.....	4,341	17,929*
Julpigoree Division	Toon logs	1	21		
	Sál "	235	5,450		
	Sorol "	1	22		
	Sissu "	5	58		
	B. g. sleepers	42	140		
	Scantlings	44	.....	328	5,671
Division	Sál logs	3,980	98,343		
	Sissu "	291	3,224		
	Miscellaneous	20	272		
	Sál b. g. sleepers	9	28		
	Scantlings	39	15		
	Kalakhambas	63	.....	4,262	1,01,882
Sunderbuns Division	Sundri posts	332	3,229	332	3,229
Received during the year.					
Darjeeling Division	Fender posts	2,036	4,442		
	Oak pieces	2	41	2,038	4,483

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Removed by Purchasers.					
Darjeeling Division	Fender posts	2,036	4,442		
	Oak pieces	2	41	2,038	4,483
Teesta Division	Sál logs	2	156		
	" n. g. sleepers	546	728	548	884
Kursiong Division	Sál logs	604	19,964		
	Sissu "	387	2,535		
	Khair "	2	14		
	B. g. sleepers	146	469		
	Bed plates	23	115		
	Sál n. g. sleepers	29,680	39,572		
	" " rejected	2,191	2,922		
	Others, n. g. sleepers	495	660		
	Scantlings	59	.....		
	Sál slabs	64	.....		
	" ends	9	.....		
	Kalakhambas	243	.....	33,903	66,251
Julpigoree Division	Sál logs	170	3,290		
	Sissu "	5	58		
	Boeri "	1	41		
	Sál ends	42	.....		
	" slabs	673	.....		
	Sorol planks	6	.....		
	Toon "	3	.....		
	Sál "	49	.....		
	" n. g. sleepers	3,323	4,431	4,272	7,820
Buxa Division	Sál logs	510	12,593		
	Sissu "	4	59		
	Sál pieces	35	.....		
	Kalakhambas	134	.....		
	Sál ends	.....	.....		
	" slabs	183	.....		
	" n. g. sleepers	6,147	8,195	7,013	20,847
Sunderbuns Division	Sundri posts	2,000	750	2,000	750
Transferred from one depôt to another.					
Teesta Division	Sál logs	45	983		
	" n. g. sleepers	872	1,163	917	2,146

Account of Timber and other Produce, 1877-78—continued.

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Teesta Division	Sál logs	85	3,281		
	Sál n. g. sleepers	1,072	1,430		
	" " rejected	206	275	1,363	4,986
Kurseong Division	Sál logs	444	14,911		
	Sissu "	10	166		
	Bed plates	23	115		
	Sál b. g. sleepers	153	494		
	" n. g. "	28,288	37,717		
	" " rejected	1,445	1,927		
	Hurra n. g. sleepers	25	33		
	Sál planks	8	.....		
	Sissu "	28	.....		
	Sál slabs	64	.....		
	Kalakhambas	384	.....		
	Sál ends	60	.....	30,932	55,363
Julpigoree Division	Toon logs	3	89		
	Sál "	331	6,717		
	Boeri "	1	41		
	Jhow "	1	37		
	Sál ends	332	.....		
	" slabs	629	.....		
	Sál n. g. sleepers	3,965	5,287		
	Sorol planks	17	.....		
	Huldi "	11	.....		
	Toon "	154	.....		
	Sál "	94	.....	5,608	12,171
Buxa Division	Sál logs	255	8,933		
	Sissu "	23	335		
	Miscellaneous	6	96		
	Sál pieces	299	.....		
	Kalakhambas	157	.....		
	Sál n. g. sleepers	14,433	19,243		
	" " rejected	163	217		
	Sál slabs	606	.....	16,002	28,824
Sunderbuns Division	Sundri posts	2,000	750	2,000	750
Transferred from one depôt to another.					
Teesta Division	Sál logs	45	983		
	Sál n. g. sleepers	872	1,163	917	2,146
Kurseong Division	Sál logs	20	650		
	Kalakhambas	69	.....		
	Sál n. g. sleepers	741	988	830	1,638

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Kurseong Division	Sál logs	20	650		
	Sleepers, n. g.	741	988		
	Kalakhambas	69	.....	830	1,638
Buxa Division	Sál logs	442	13,448		
	" pieces	65	.....		
	Kalakhambas	139	.....		
	Sál n. g. sleepers	11,997	15,905		
	" " rejected	71	94		
	Sál slabs	25	.....		
	Scantlings	1	.....	12,740	29,537
Cut into sleepers, &c.					
Teesta Division	Sál logs	84	5,211	84	5,211
Kurseong Division	Sál logs	115	3,710		
	Sissu "	5	83		
	Kalakhambas	20	.....	140	3,793
Julpigoree Division	Toon logs	2	21		
	Sál "	267	4,941		
	Sorol "	1	23		
	Sál n. g. sleepers	22	29	292	5,013
Buxa Division	Sál logs	871	21,146	871	21,146
Lost and used by the department.					
Teesta Division	Sál logs	26	613		
	" sleepers	138	184	164	797
Kurseong Division	Sál logs	.....	.....		
	Sissu "	113	730		
	Sleepers, b. g.	29	95		
	Kalakhambas	99	.....	241	825
Julpigoree Division	Huldi planks	1	.....	1	
Buxa Division	Sál logs	4	51		
	Kalakhambas	12	.....		
	Scantlings	1	.....	17	51
Sunderbuns Division	Sundri posts	332	3,229	332	3,229
Balance at close of the year.					
Darjeeling Division	Nil	.....	.....		
Teesta Division	Sál logs	19	370		
	Sleepers, sál, n. g.	388	518		
	" " rejected	206	275	613	1,163
Kurseong Division	Sál logs	59	1,785		
	Sleepers, b. g.	15	53		
	Hurra n. g. sleepers	25	33		
	Sál n. g. "	150	200		
	" " rejected	267	352		
	Scantlings	8	.....		
	Kalakhambas	378	.....		
	Sál planks	8	.....		
	Sissu "	28	.....		
	Sál ends	51	.....	989	2,427

Buxa Division	Sál logs	442	13,443		
	" pieces	65	.....		
	Kais khambas	139	.....		
	Sál n. g. sleepers	11,997	15,995		
	" " rejected	71	94		
	Sál slabs	25	.....		
	Scantlings	1	.....		
				12,740	29,537
Total		.....	.....	81,739	2,71,678

Julpigoree Division	Toon logs	2	89		
	Sál "	129	3,916		
	Jhow "	1	37		
	Sál ends	290	.....		
	" slabs	26	.....		
	Sleepers, b. g.	42	140		
	" n. g.	620	827		
	Sorol planks	11	.....		
	Huldi "	10	.....		
	Toon "	151	.....		
	Sál	45	.....		
	Scantlings	44	.....	1,371	5,009
Buxa Division	Sál logs	2,800	73,436		
	Khair "	11	144		
	Sissu "	220	3,500		
	Miscellaneous	15	224		
	Sál pieces	264	.....		
	Sleepers, b. g.	9	28		
	" n. g.	8,286	11,048		
	" " rejected	163	217		
	Sál slabs	483	.....		
	Scantlings	38	15		
	Kalakhambas	74	.....	12,363	88,662
Total		.....	.....	81,739	2,71,678

FIREWOOD AND CHARCOAL.

Balance in hand at commencement of year.	Mds.	Mds.
Darjeeling Division ... Firewood	Nil.	Nil.
Kurseong Division ... Firewood	1,786	1,786
Received during the year.		
Darjeeling Division ... Firewood	1,71,685	.....
Darjeeling Division ... Charcoal	6,238-16 seers.	1,77,923-16 seers.
Kurseong Division ... Firewood	1,028	.....
Kurseong Division ... Charcoal	20	1,048
Total	.....	1,80,757-16 seers.

Removed by Purchasers.	Mds.	Mds.
Darjeeling Division ... Firewood	1,67,173½	.....
Darjeeling Division ... Charcoal	5,872-16 seers.	1,73,045-36 seers.
Kurseong Division ... Firewood	2,814	.....
Kurseong Division ... Charcoal	20	2,834
Balance at close of year.		
Darjeeling Division ... Firewood	4,511½	.....
Darjeeling Division ... Charcoal	366	4,877½
Total	.....	1,80,757-16 seers.

BAMBOOS.

	No.	No.
Balance in hand at commencement of year	67,715	67,715
Total	.....	67,715

Removed by Purchasers.	No.	No.
Palamow Division ... Bamboos	54,403	54,403
Lost and used by the department.		
Palamow Division ... Bamboos	13,312	13,312
Balance at close of year	Nil.	Nil.
Total	.....	67,715

Annual Form No. 60.

FOREST DEPARTMENT, BENGAL.

Abstract showing the value of Timber and of Live and Dead Stock for the year 1877-78.

Description of Timber and other Stock.	On hand at commencement of the year.		On hand at the close of the year.		Difference.		Remarks.
	Number.	Value.	Number.	Value.	In favor of the year.	Against the year.	
		Rs. A. P.		Rs. A. P.	Rs. A. P	Rs. A. P.	
Darjeeling Division.							
Fender posts	.....	.....	.....	.....			
Oak pieces	.....	.....	.....	.....			
Firewood	.....	.....	Mds. 4,511½	627 14 0			
Charcoal	.....	.....	866	314 4 0			
Iron safes	.....	.....	2	250 1 4			
Total	.....	.....	.....	1,192 3 4	1,192 3 4	.....	
Teesta Division.							
Sál	46	4,836 4 0	19	370 0 0			
„ sleepers, n. g.	.....	.....	388	776 0 0			
„ „ rejected	.....	.....	206	141 10 0			
Total ...	.....	4,836 4 0	.....	1,287 10 0	.....	3,548 10 0	
Kurseong Division.							
Sál logs	334	8,575 12 0	59	3,034 12 0			
Sissu	405	717 4 0	.....	.....			
B. g. sleepers	57	18 8 0	15	33 12 0			
N. g. „	2,657	} 4,595 0 0	150	300 0 0			
„ „ rejected	1,013		267	200 4 0			
Scantlings	67	161 0 0	8	24 0 0			
Kalakhambas	365	800 0 0	378	988 8 0			
Khair logs	2	2 0 0	.....	.....			
Bed plates	.....	.....	.....	.....			
N. g. Hurra sleepers	.....	.....	25	37 8 0			
Sál planks	.....	.....	8	8 0 0			
Sissu „	.....	.....	28	14 0 0			
Sál ends	.....	.....	51	12 12 0			
Elephants	4	6,000 0 0	4	7,000 0 0	.....	.....	1 received from Burma division 1 died
Bullocks	2	60 0 0	2	60 0 0			
Firewood	Mds. 1,786	199 3 7	.....	.....			
Total ...	.....	21,208 11 7	.....	11,713 8 0	.....	9,495 3 7	
Julpigoree Division.							
Toon logs	1	5 0 0	2	10 0 0			
Sál „	235	4,365 0 0	129	1,935 0 0			
Sorol „	1	8 0 6	.....	.....			
Sissu „	5	20 0 0	.....	.....			
B. g. sleepers...	42	42 0 0	42	94 8 0			
Scantlings	44	18 9 0	44	.....			
Jhow logs	.....	.....	1	5 0 0			
Sál ends	.....	.....	290	108 12 0			
„ slabs	.....	.....	26	4 14 0			
„ n. g. sleepers	.....	.....	620	1,240 0 0			
Sorol planks	.....	.....	11	13 12 0			
Huldi „	.....	.....	10	5 0 0			
Toon „	.....	.....	151	188 12 0			
Sál „	.....	.....	45	56 4 0			
Elephants	2	3,000 0 0	4	6,000 0 0	.....	.....	2 received from Chittagong division.
Total ...	.....	7,458 9 6	.....	9,661 14 0	2,203 4 6	.....	
Buxa Division.							
Sál logs	3,930	99,316 12 0	2,800	83,800 10 0			
Sissu „	201	2,859 2 0	220	3,500 0 0			
Miscellaneous „	20	152 7 6	26	184 0 0			
Sál b. g. sleepers	9	9 0 0	9	9 0 0			
Scantlings	39	16 7 0	38	14 0 0			
Kalakhambas	68	303 0 0	74	222 0 0			
Sál pieces	.....	.....	264	132 0 0			
„ sleepers, n. g.	.....	.....	8,286	14,062 6 0			
„ „ rejected	.....	.....	163	81 6 0			
„ slabs	.....	.....	483	60 5 0			
Elephants	5	13,000 0 0	4	10,500 0 0	.....	.....	1 transferred to Kurseong division.
Buffaloes	2	40 0 0	2	40 0 0			
Total ...	.....	1,15,696 12 6	.....	1,12,614 14 0	.....	3,081 14 6	
Palamow Division.							
Bamboos	67,715	402 14 2	.....	.....			
Elephants	1	1,500 0 0	1	1,500 0 0			
Total ...	.....	1,902 14 2	.....	1,500 0 0	.....	402 14 2	
Sunderbuns Division.							
Sundri logs	332	605 6 6	.....	.....			
Boats	30	3,906 15 8	31	5,732 7 5			
Total ...	.....	4,512 6 2	.....	5,732 7 5	1,220 1	.....	
Chittagong Division.							
Elephants	2	3,000 0 0	.....	.....	.....	.....	Transferred to Julpigoree division.
Total ...	.....	3,000 0 0	.....	.....	.....	3,000 0 0	
Grand Total ...	.....	1,58,615 9 11	.....	1,43,702 8 9	.....	14,931 1 2	

* These figures do not agree with the closing balance shown in last year's account, because 322 cubic feet, being the contents of 67 scantlings, have been omitted.

W. H. D'C.—Regr. No. 5437—600—1-10-78.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN

BENGAL

FOR

1878-79,

By J. SYKES GAMBLE, Esquire,

OFFICIATING CONSERVATOR OF FORESTS,

WITH A REVIEW BY THE LIEUTENANT-GOVERNOR

AND

ORDERS BY THE GOVERNMENT OF INDIA.

1879.

CALCUTTA:

PRINTED BY THE SUPERINTENDENT OF GOVERNMENT PRINTING,

8, HASTINGS STREET.

No. 807F., dated the 13th October 1879.

From—The Officiating Secy. to the Govt. of India, Home, Rev. and Agri. Dept.,
To—The Secretary to the Government of Bengal, Revenue Department.

I AM directed to acknowledge the receipt of your letter No. 1866-232 (Forests), dated the 13th ultimo, forwarding the Annual Report on Forest Administration in Bengal for 1878-79, together with an exhaustive review thereon by His Honour the Lieutenant-Governor, which leaves but little for the Government of India to add.

2. If the data given regarding the area of Reserved Forests are correctly understood, 3,430 square miles had been demarcated at the commencement of the year as Reserved Forests under the old Bengal Forest Rules, and of this area 2,967 square miles were in 1878-79 declared Reserved Forests under the Indian Forest Act. The difference comprises the Damin-i-koh in the Sonthal Perganas (40 square miles), which has been permanently excluded from the Reserved Forests, and certain areas in the Singbhoom and Hazaribagh Districts which it is proposed hereafter to declare Reserved Forests under the Act.

3. Preliminary notifications were issued of areas intended to be declared Reserved Forests under the Act, aggregating 1,390 square miles in the Chittagong, Teesta, Jalpaiguri, and Hazaribagh Divisions, and it is expected that at the close of the current year the area of Reserved Forests under the Indian Forest Act will aggregate 4,760 square miles, of which 1,720 will be in Chittagong, 1,581 in the Sundarbans, 846 in the Himalaya and along their lower edge, while the remainder, or about 613 square miles, will be in Chota Nagpore. The Governor General in Council recognizes the fact that good progress has been made in setting apart a sufficient extent of forest for most of those districts of the Lower Provinces in which there is forest land at the disposal of Government.

In addition to these areas 1,925 square miles were gazetted as protected forests in the Sundarbans. The land included within these protected forests will, under definite rules, be available for the extension of cultivation, but Government retains the control of the forest growth upon it, until it is actually cleared and brought under the plough.

4. Good progress is reported to have been made in marking off on the ground in a permanent manner the boundaries of the Reserved Forests, and in preparing boundary records. The outlay on demarcation is reported to have been Rs. 6,918.

5. The forests under the control of the Conservator are arranged in eight administrative divisions, and the superior staff sanctioned for them consists of one Conservator and nine Deputy and Assistant Conservators, to whom two Sub-Assistant Conservators have lately been added. The subordinate staff which the Conservator contemplates entertaining during the current year is expected to consist of 16 rangers, 57 foresters, and 163 forest guards. The total cost of establishments in 1878-79 was Rs. 127,760.

The forests of the Darjeeling and Teesta Divisions are divided into three ranges each, and in the other divisions progress in administrative organization is reported to have been made. As the organization in the different divisions is completed, brief statements should be recorded in the annual report under each division, exhibiting the arrangement of executive and protective charges (ranges and beats).

6. The record of the efforts made by the Conservator to exclude fires from the forests has been read with interest, although these efforts have only been partially successful. Out of 189,653 acres, the protection of which was attempted, 82,899 acres failed; but it is satisfactory that a great part of the Buxa and Tondu and of some other forests was protected, and that the plantations of Bamunpokri and Sitapahar were saved. The exclusion of fires is a matter of paramount importance, and the Governor General in Council cordially concurs in the orders passed thereon by His Honour the Lieutenant-Governor. Compared with the total area of the province, the extent of the Reserved Forests which are intended to be permanently maintained as such is small, and every effort must be made to ensure the efficient protection of this

limited area. The outlay on fire protection during the year was Rs. 2,453, which is moderate.

7. Good success has attended planting operations in the forests near Darjeeling, and there seems ground to hope that as more experience is gained regarding the treatment and requirements of the trees planted, the cost of these operations will gradually be diminished. On plantations, Rs. 13,165 were expended during the year.

8. The total outlay on the formation and improvement of the forests amounted to Rs. 99,124, of which Rs. 63,492 were laid out on the purchase from private persons of certain blocks of Sâl Forest in the Darjeeling Terai. It also includes Rs. 8,362, expended upon communications and buildings.

9. In paragraph 38 of his Report the Conservator has given an important statement exhibiting the receipts and charges of the year distributed among the three great heads of "departmental timber operations," "other revenue," and "formation, protection, and improvement of the forests." The results stand as follows:—

	Receipts.	Charges.
	Rs.	Rs.
Departmental timber operations	1,66,649	1,20,624
Other revenue	2,49,378	71,426
Formation, protection, and improvement of the forests ...	...	1,46,625
Total Rs. ...	4,16,027	3,38,675

The figures of this statement are based upon an analysis in each division of the items of receipts and charges, including those on account of establishments, and may be accepted as a fair representation of the financial results of forest administration in Bengal during the year under review.

10. As explained on former occasions, the financial results of departmental timber operations can only be correctly estimated by putting together the results of a series of years. This has been done by the Conservator in paragraph 38 of his report, and the results for the five years from 1874-75 to 1878-79 are as follows:—

469,370 cubic feet brought to depôt at a cost, including a fair quota of establishment charges, of Rs. 386,150, or Rs. 82 per 100 cubic feet.

375,931 cubic feet sold for Rs. 477,017, or at the rate of Rs. 127 per 100 cubic feet.

11. In paragraphs 34 and 35 the surplus realized on timber, firewood, and charcoal exported and sold on Government account in the Darjeeling, Kurseong, and Buxa Divisions is stated, and it is satisfactory that the surplus realized on timber has, during the five years in question, increased in the Kurseong and Buxa Divisions from Re. 0-5-10 and Re. 0-5-2 per cubic foot in 1874-75 to Re. 0-12-3 and Re. 0-11-4 per cubic foot in 1878-79, respectively. 181,727 maunds of firewood and charcoal were brought to depôt during the year, and sold in the Darjeeling Division at an average outlay, including a quota of establishment charges, of Rs. 21-2-7 per 100 maunds, yielding a surplus of Rs. 6-2-3 per 100 maunds.

12. The memorandum by Mr. Gamble on the supply of firewood and charcoal to the station of Darjeeling, received with your endorsement No. 1829-217F., dated the 11th ultimo, will be appended to, and circulated with the present report and orders.

13. The transactions on account of the demarcated reserves and unreserved and protected forests are reported to have been as follows:—

	Reserves.	Unreserved and Protected Forests.	Total.
	Rs.	Rs.	Rs.
Receipts	3,83,826	32,201	4,16,027
Charges	3,31,265	7,410	3,38,675
Surplus ...	52,561	24,791	77,352

The Reserved Forests at the close of the year were 2,967 square miles, but in reality the area to which the transactions here recorded relate was much larger, though the whole area was not formally declared as Reserved Forests under the Act. Calculating the gross revenue upon 3,500 square miles, which may be taken as a fair estimate of the area to which the transactions relate, it amounts to Rs. 119 per square mile, or three annas per acre.

14. The report and the statements are well arranged, and are creditable to the Officiating Conservator. The comparison of the actuals with the estimate given in statement 49 is not required, and should be omitted in future reports.

Govt. Central Branch Press, Simla.—No. 540, H., R. & A. D.—20-10-79—365.

REVENUE DEPARTMENT.

FORESTS.

CALCUTTA, THE 7TH SEPTEMBER 1879.

RESOLUTION.

READ—

The Progress Report of Forest Administration in Bengal for the year 1878-79.

THE report on the Administration for the year 1878-79 is submitted by Mr. Gamble, who was appointed to act as Conservator under the Bengal Government, on Dr Schlich's departure on furlough in January last. Dr. Schlich was thus at the head of the department during the greater part of the period embraced by the report. But Mr. Gamble was in charge during a sufficient portion of the working season to complete some important work of inspection.

2. It was observed in the Resolution on the report for 1877-78 that it was in contemplation to take up an extensive tract in the Chittagong Hills In pursuance of this project, Mr. Gamble in February and March visited the forests of the Rinkheong Valley. The result of his examination was very satisfactory. A dense and almost virgin forest of fine timber was found, rich in bamboos and forest produce of all descriptions. Water communication is at hand, and there is every prospect of successful working of the tract to be administered. The Sungoo forest, which was visited later on by Mr. Chester, Assistant Conservator, is reported to be the richest in large timber of those yet taken up in Chittagong. The forest has hardly been encroached upon by man, either by cutting or jooming, and the soil is so favourable to forest growth that large timber is found on the upper as well as on the lower parts of the hills. There are great quantities of very fine jarúl, as well as toon, chaplis, badana, gurjun, and kandele. It is stated that it would be possible, by removing some rocks near the mouth of the Thendoo Kheong, to bring this forest into water communication with the Sungoo river. This may form the subject of special enquiry hereafter. These two fine forests, aggregating in area 370 square miles, were notified as proposed reserves on 22nd April last. Mr. Gamble also examined two important blocks in the Darjeeling Hills, the Babookhola and the Pugraingbong forests The first lies at the head waters of the Mahanadi, and the other is situated on the Rayem, a tributary of the Balasan river. They both contain much large and valuable timber, including oak and chestnut.

3 On 23rd January last, a comprehensive notification was issued specifying all the forest lands then actually reserved. The Koderma and Saranda Pir forests in Hazaribagh and Singbhoom, containing respectively 31 and 400 square miles, will be added during the current year, on the completion of the necessary preliminaries. At the beginning of 1878-79 the area under the Forest Law was 3,430 square miles. From this were finally excluded the Damin-i-Koh in the Sonthal Pergunnahs and two trifling areas in Darjeeling and Julpigoree, and temporarily the Hazaribagh and Singbhoom forests,—altogether 504½ square miles; while 41½ were added in the Darjeeling, Teesta, and Kurseong Divisions. At the end of the year the total was thus 2,967. In last year's resolution it was anticipated that the area at the close of the year would be 4,406 square miles. Unavoidable delay in completing preliminaries in the Teesta and Chittagong Divisions and in Chota Nagpore has caused the difference. During the current year 1,816 square miles will probably be added; but it is not unlikely that a great part of the reserved area of 37 miles in the Shahabad district may be excluded. The area at the end of 1879-80 will therefore apparently be about 4,760 square miles, of which 846 will consist of Himalayan and Sub-Himalayan forest. The anticipated accessions include 1,150 square miles in Chittagong, consisting of the Kasalong, Rinkheong, and Sungoo forests, and the Sitapahar and Matamori additions; the Koderma and Saranda Pir forests in Chota Nagpore, aggregating 431 square miles; 190 square miles in the Teesta Division, of which the demarcation and settlement could not be completed during the year;

three blocks of 19 square miles in Julpigoree; and 36 square miles in the Darjeeling, Kurseong, and Buxa Divisions, which include the Babookhola and Pugraingbong forests, some land to be taken over from the Cinchona Department, and about 5,800 acres in Kurseong purchased from Mr. W. Lloyd. The operations completed and projected are thus:—

	Square miles.	Square miles.
Area on 1st April 1878	.....	3,430
Added in 1878-79	41½	.....
Excluded	504½	.....
Area on 1st April 1879	.....	2,967
Expected increase in 1879-80	1,816	.....
Probable area on 1st April 1880, after decrease in Shababad	.. ..	about 4,760

4. By notifications issued on 24th February 1879, a gross area of 1,925 square miles of Sunderbun waste in the districts of 24-Pergunnahs and Jessore was declared "protected" forest under the Act. A small establishment has since the close of the year been sanctioned for the conservancy of the Khoordah forests in the district of Pooree, and it is intended that these forests shall be examined during the approaching dry season by an officer of the Department. Definite proposals for their management will then be submitted.

5. Demarcation was completed over 43 square miles, and of the 2,967 square miles actually reserved, only 57, including 12 in Darjeeling, eight in Kurseong, and 37 in Palamow, remain to be demarcated. Fair progress has been made with the boundary records. The record of the whole forest area of the Buxa Division has been completed and the boundaries have been mapped, and it is hoped that during the current season the work will be nearly concluded in the Darjeeling, Teesta, Kurseong, and Julpigoree Divisions.

6. With the extension of the operations of the department it has been found necessary to increase the provision for subordinate establishment. The monthly allowance has now been raised to a maximum of Rs. 5,000, and the settlement of details has been left to the discretion of the Conservator.

7. Prosecutions for breach of rules numbered 74 against 139 in 1877-78, and 233 in 1878-79. The decrease in 1878-79 occurred in the Sunderbuns Division, where there were only 46 cases against 131 in the previous year. There was a considerable improvement in the proportion of convictions obtained. In the Northern Divisions and in Palamow conviction followed in 19 cases out of 20. In the Sunderbuns 46 cases of this year were disposed of, and altogether 19 cases led to convictions, but of the latter some appear to have been sent up in the previous year. Generally it may be said that the results show increasing acquiescence in the rules by the people, and greater discrimination on the part of the forest officers. There were two prosecutions for injury to forests by fire in Julpigoree and three in Buxa against one in Julpigoree only in 1877-78. In the Buxa cases, 45 persons were convicted. Of these, 39 were shikaris, who deliberately fired the grass in order to drive game into their nets. One large fire in this tract is believed to have been caused by malicious persons, but sufficient proof could not be obtained to warrant their arrest. This subject will be more particularly referred to further on in the separate remarks on the different divisions. It is sufficient to note here that the year was exceptionally dry, and that unusually high winds prevailed in March and April, with the result that 83,000 acres were burnt out of 190,000 acres which the forest officers attempted by special measures to protect. It is reported that some useful precautions were suggested by the Inspector-General, on the occasion of his visit, and that the adoption of these has already been productive of good. The Conservator refers in general terms to the value of assistance from public officers generally, and to a projected extension of the protective works in 1880. The subject is an extremely important one, especially in the sâl producing tracts from which railway sleepers must be supplied, and the Lieutenant-Governor has no doubt that, with freedom from demarcation work and energetic supervision, the forest officers will apply themselves earnestly to the task of protecting the forests from fire. But Sir Steuart Bayley would wish to have a separate and comprehensive report showing precisely what measures should be adopted, and whether subsidiary rules might not be enacted to ensure better results than have yet been attained, and to secure the co-operation of all classes of public servants.

8. Besides repairing and improving existing roads, the Forest Department constructed 18½ miles of new road during the year in the Darjeeling, Kurseong, and Buxa Divisions.

9. The plantations now contain an area of 843 acres, including 207 acres added during the year. The Darjeeling plantations of oak, chestnut, magnolia, and walnut received an extension of 107 acres; 80 acres were added to the plantations of teak, toon, sâl, and sissu in Chittagong, and 15 acres to the sâl plantations in Buxa.

10. Dr. King's report on the experiments made with economic plants in the Calcutta Botanical Garden shows a very small measure of success. It appears to be established that, so far as Bengal is concerned, the attempt to cultivate the para rubber tree and the carob must be added to the list of failures. The same must be said of the Queensland, as well as the Tasmanian *Eucalypti*. Dr. King's anticipations regarding the ceara rubber seem to have been so far fulfilled. The seedlings, unlike the para, are growing rapidly; but whether they will develop into healthy trees is still doubtful. The *crosopis pallida* are still thriving, and the successful introduction of plants of this tree appears to be assured. The plants raised from the seed received without name from Dr. Forbes Watson in 1876 have now flowered, and Dr. King has had no difficulty in identifying them. They turn out to be the *Acacia Farnesiana*, a shrub which is common in Indian gardens. Large quantities of mahogany and rain-tree seedlings have been supplied during the year to private purchasers. As regards the experiments made by the Forest Department, the India-rubber and bamboo plantations at Bamunpokri are thriving, but the failure of the Spanish chestnuts seems to be confirmed. Experiments will be made at Chittagong during current year with mahogany and ceara rubber seed.

11. The number of trees felled during the year was 6,481 and the quantity of timber, exclusive of firewood, brought to depôt from the forests was 78,082 cubic feet. Altogether 30,989 sleepers were supplied to the Northern Bengal State Railway, nearly all from the Buxa and Kurseong Divisions. Considerable quantities of timber were also supplied for the Rungpore-Dhoobree road. The attention of the Lieutenant-Governor has just been drawn to the supply of excellent timber in the Nepal forests, of which the Durbar are anxious to encourage the export. It may be possible, in case of need, to supplement the outturn of our forests from this source, and it is not unlikely that an extension of the trade might arrest the destruction of fruit-trees and other small timber in the plains. The Darjeeling forests supplied 1,81,727 maunds of firewood and charcoal with an average clear profit of Rs. 6-2-3 per 100 maunds. The profit on each cubic foot of timber supplied from the Kurseong and Buxa Divisions was 12 annas 3 pie and 11 annas 4 pie respectively.

12. The following table shows the financial results of the working of the Department since 1871:—

Year.	Receipts.	Charges.	Surplus profit.	Area of reserved forests.
	Rs.	Rs.	Rs.	Square miles.
1871-72	87,260	67,506	19,754	106
1872-73	1,16,690	62,554	54,136	106
1873-74	1,23,732	81,068	42,664	120
1874-75	1,85,914	98,634	87,260	1,467
1875-76	1,98,274	1,39,086	59,188	2,585
1876-77	2,22,401	2,11,689	10,712	3,390
1877-78	4,32,363	2,61,112	1,71,251	3,434
1878-79	4,16,027	3,38,675	77,353	2,967

Comparison between the past two years is disturbed by the heavy charge of Rs. 63,492 which was incurred in 1878-79 for the purchase of land in Kurseong. This purchase, however, was made on very advantageous terms, and ought to result in a considerable increase of revenue hereafter. If this extraordinary disbursement is left out, the comparison stands thus:—

	Rs.
1877-78	1,71,251
1878-79	1,40,845

Of the actual net surplus, the reserved forests contributed Rs. 52,562, and the unreserved Rs. 24,791. The Sunderbuns Division showed a surplus of

Rs. 1,36,314, Buxa Rs. 44,325, and Darjeeling Rs. 13,605. In all the other reserved forests the charges exceeded the receipts. The unreserved forests of the Chittagong Hill Tracts and Chittagong produced a profit of Rs. 19,710 and Rs. 5,081 respectively. The financial results are decidedly satisfactory and creditable to the departmental management. There is every promise of considerable expansion of the revenue as the system of careful conservancy becomes more and more matured.

13. The following are the chief points which call for notice in the detailed reports on the several divisions :—

14. *Darjeeling.*—There was a net increase of 11 square miles in the area. The Darjeeling Municipality made over 3,000 acres in the Goompahar range. In the Tukdah range 75 acres belonging to the Botanical Garden at Rungaroon, 1,500 acres of khas land at Poomong, and 2,500 acres formerly attached to the Cinchona Plantation were added. On the other hand, 400 acres were surrendered on lease by special order. There were also some modifications of the area of the Rungbúl range. The net result was an increase of 11 square miles to the area within the Division. It is proposed to form a new range under the Kurseong Division in which will be included the Babookhola forest, as well as a portion of the Rungbúl range. The results of the transplanting operations under the system introduced by Dr. Schlich were very successful, though the season was not favourable. The growth of the walnut, ash, and cypress plants on the Rungbúl range was specially good. Extensive planting of toon, pipli, and walnut trees in the Rungaroon and Senchal Jhora blocks is in contemplation, and the prospects are good. The exceptional dryness of the season caused fires at an unusual elevation It is reported that a large tract of forest on the Tonglo range between 7,000 and 10,000 feet in altitude was devastated by fire. Arrangements have been made to obviate the danger of ignition from camp-fires by providing specially protected camping grounds.

15. *Teesta.*—The work of demarcation will soon be completed and an area of 190 square miles will then be formally added to the reserved forests. The forests in this Division are particularly interesting, as they reach from the Terai to an elevation of over 10,000 feet, and so include all the different descriptions of timber from the sâl to the rhododendron. The Division still shows a deficit of Rs. 10,660, but this is unavoidable while expensive preliminary operations are in progress. There has been an increase from Rs. 1,945 to Rs. 3,086 in the receipts, and it is hoped that, with the completion of the work of demarcation, something like financial equilibrium may be attained.

16. *Kurseong.*—The boundaries in this Division were in some places improved by exchanges with tea-planters. The lands purchased from Mr. Lloyd have been demarcated, but not yet finally gazetted. Dr. Schlich in his report for 1877-78 anticipated that the demarcation of the whole Division would be completed before the close of 1878-79, but in consequence of numerous boundary disputes this has not been found practicable. The forest officers have made creditable progress in the important work of opening up and maintaining forest roads. Mr. Gamble reports that about 140 miles of forest roads have now been made, and that the export of produce and inspection have been much facilitated in consequence. The forests suffered severely from fire, and, with the exception of the Bamunpokri forest, almost all the land in the Terai and lower hills was burnt over during the year. With the completion of the demarcation work, it is proposed to adopt vigorous protective measures in this Division with the aid of the civil officers and tea-planters. The Lieutenant-Governor has already expressed a wish to know the details of the general scheme. A larger number of sleepers were prepared for the Northern Bengal State Railway than were actually required, and none will be supplied in 1879-80. The general financial result of the working of the Division is a deficit of Rs. 66,084. It is to be observed, however, that the receipts do not include Rs. 17,734 credited after the close of the year on account of railway sleepers, while the charges include a sum of Rs. 63,492 on account of the purchase of land. If these items are adjusted, the true result of the working of the forests during the year is found to be a surplus of Rs. 15,142.

17. *Julpigoree.*—There was no increase tothe reserved area during the year, but three blocks, containing nearly 19 square miles, will soon be included by formal notification. The gross area of the division will then be 167 square miles. Demarcation has now been practically completed. Nothing has yet been done towards constructing roads and bridges, but a commencement will

now be made in the Muraghat forest. It has been found necessary to abandon the attempt to plant teak in this Division. The plantation of Falakata was last year reported to be a failure, and now the plantation at Ramshai Hât has again been damaged by fire. The Inspector-General has further come to the conclusion that the climate is unsuitable for such experiments. Endeavours were made to protect the Muraghat, Apalchand, and Tundu forests both before and during the Inspector-General's visit. Parts of the Savannah were purposely burnt, and a quarter of the Apalchand and two-thirds of the Tundu area were thus saved. Late in the season, however, the greater part of the Muraghat sâl forest was burnt. The persons who caused this fire were prosecuted and have since been sentenced to three months' imprisonment. The receipts were only Rs. 8,286 against Rs. 12,580 in 1877-78. This falling off was to be expected. It has been decided to work the reserves as little as possible for a few years except for dry and fallen trees. In 1877-78 a large quantity of sleepers had to be supplied for the Northern Bengal State Railway, but during the past year the quantity of timber taken to depôt was only 1,808 cubic feet against 12,171 in 1877-78. The receipts from departmental timber operations were accordingly only Rs. 3,617 against Rs. 10,020. Miscellaneous receipts, however, from which the greater part of the revenue will probably for some time be derived, increased from Rs. 2,559 to Rs. 4,689.

18. *Buxa.*—No addition was made to the area of reserved forest under this Division during the year. A good deal of useful work was done in clearing the forest roads and boundary line, and in opening up new paths. There were several very serious fires. One which originated in the Bholka reserve extended over 11 square miles. This was believed to be the work of persons bearing a grudge to the forest guard, but judicial proof could not be obtained. In the Buxa range an area of 58 square miles was burnt in spite of the strenuous efforts of the divisional officer to arrest the progress of the fire. Two fires occurred in the Borojhar range, and in one of these cases the persons through whose carelessness the accident occurred were convicted. The Raidak forest in the Huldeebaree range was burnt by shikarees who deliberately fired the grass in the pursuit of game. In this case 39 persons have been convicted and sentenced to various terms of imprisonment. These convictions will doubtless have a good effect, and the Conservater hopes with the assistance of the sub-divisional officer to be able to protect the forests better this year. This important Division produced a surplus of Rs. 44,325, due in part to the operations of the previous season, but chiefly to increased sale of timber during the year. No less than 18,449 sleepers were supplied to the Northern Bengal State Railway, and large quantities of timber in log was rendered available for use on the Dhoobri road. Some broad-gauge sleepers of khair, sissu, and other descriptions of wood were prepared for the Eastern Bengal and East Indian Railways. There is a large stock of timber still lying in the forest, which will be gradually removed and disposed of. The Conservator reports that there is some prospect of a market being found for sissu logs. Considerable difficulties are experienced in retaining sawyers to work in the northern tracts owing to the want of water, but arrangements have been made to transport water from Rajabhatkowa. Altogether the Buxa Division promises to be of great public utility as well as of profit to the State.

19. *Palamow.*—No change has taken place in the area of this Division. It will be some time before the forests can be worked at a profit. The charges were Rs. 15,209 against receipts amounting to Rs. 757. The Lieutenant-Governor has now under consideration the question whether all or a part of the Rohtas range of 37 square miles in the Shahabad district should not be excluded from the reserved area.

20. *Sunderbuns.*—The reserved area underwent no modification during the year, but the adjoining tracts of forest, 1,851 square miles in extent, as well as blocks containing 74 square miles in the 24-Pergunnahs and Jessore, were formally brought under protection. The chief difference between the two classes of forest is that goran is more plentiful in the protected, and soondri in the reserved, portions. The collections were Rs. 1,71,990 against Rs. 1,73,156 in 1877-78, while there was a considerable increase under the B heading of charges. The chief causes of the decrease in the amount realized by the sale of material appear to be competition by owners of private forest, and the difficulty of obtaining convictions against persons removing wood without payment.

21. *Chittagong.*—The reserved area was not increased during the year, but it is hoped that before the close of the current season five new tracts, containing 1,150 square miles, will be formally added. There are practically no means of communication in the Chittagong forests, except along the lines of small streams and rivers. A commencement, however, has been made, and a road will be gradually constructed traversing the Kaptai, Rinkheong, and Sitapahar blocks. The Kaptai plantation did not thrive very well, owing to the comparative lightness of the rains in August and September; but the Conservator is still sanguine of success. The financial results cannot be accurately shown for the whole year separately from those of the open forests, as the latter were only made over to the management of the civil officers on 1st June. Taking half the gross expenditure for the first two months, the Conservator shows that the deficit on the reserved area is Rs. 16,407. Practically, however, these reserves have not yet been worked. The receipts were only Rs. 1,700. A considerable expansion of revenue may be looked for in the early future. The result of the new system under which the Government dues on exported produce are levied by the Deputy Commissioner is not very satisfactory. The surplus, including permit fees, was Rs. 27,634 only. The Deputy Commissioner is not satisfied that he can supervise the collectors as efficiently as the forest officers. The system, however, must have a fair trial. No doubt the falling off in these collections of late years is rightly attributed in great measure to the influence of bad seasons and temporary emigration to Arracan.

22. The value of Dr. Schlich's services as Conservator of Forests has been repeatedly and cordially acknowledged by the Governments of India and Bengal, as well as by the Secretary of State. The Lieutenant-Governor has to thank Mr. Gamble for his thoroughly efficient management of the department since it passed into his hands.

By order of the Lieutenant-Governor of Bengal,

COLMAN MACAULAY,

Offg. Secretary to the Government of Bengal.

No. 1850—218F.

COPY, with 25 copies of the Report, forwarded to the Conservator of Forests for information.

No. 1851—219F.

COPY, with copy of the Report, forwarded to the Superintendent of Forest Surveys for information.

Nos. 1852-63—220-31F.

COPY, with copy of the Report, forwarded to the District Officers of Darjeeling, Julpigoree, Lohardugga, Singbhoom, Manbhoom, Hazaribagh, Chittagong, Sonthal Pergunnahs, 24-Pergunnahs, Backergunge, Jessore, and Shahabad for information.

Circular No. 5.

COPY, with copy of the Report, forwarded to all Commissioners of Divisions for information.

By order of the Lieutenant-Governor of Bengal,

C. W. BOLTON,

Under-Secretary to the Government of Bengal.

CALCUTTA,
The 13th September 1879.

W. H and C E G.—Reg. No. 6501—13-9-79.

No. 52AR—G, dated Darjeeling, the 15th July 1879.

From—J. Sykes Gamble, Esq., Offg. Conservator of Forests, Bengal,
To—The Secretary to the Government of Bengal, Revenue Department.

I have the honor to submit herewith the Annual Administration Report of the Forest Department in Bengal for the year 1878-79.

2. As in last year's report forms 57, 58, and 59 have not been given, the information given usually in forms 57 and 58 having been entered in the body of the report. The information required for form 59 could only be got with considerable difficulty, and at best would be only an average; and as pointed out by Dr. Schlich, the timber sold to public departments is the pick of the whole, the conclusions would not be of more value than the general statements given in the report, which more correctly indicate the results of the year's working as a whole, than would conclusions obtained from a comparison of the average expenditure with the prices obtained from public departments.

3. In form 50, it will be seen that the figures of expenditure of the department do not agree exactly with those given in form 49. This is due to a small possible error of Rs. 10, which has only been recently detected, and which has required reference to the Comptroller-General to correct. I have not, however, on that account thought it necessary to delay submission of the report, which is submitted to-day in accordance with the orders of the Government of India in their circular No. 15F, dated 3rd May 1879, forwarded with your endorsement No. 1163—120F of the 1st May 1879.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN BENGAL

For the Year 1878-79.

By G. SYKES GAMBLE,

Offg. Conservator of Forests, Bengal.

SECTION I—SUMMARY OF ADMINISTRATION DURING THE YEAR.

1.—Inspection of Forests.

The chief inspection work done during the year was that in the Chittagong Hill Tracts by the Officiating Conservator and the Assistant Conservator, Chittagong Division. The Officiating Conservator visited in February and March the forests in the Rinkheong valley, which proved to be very valuable and almost untouched.

2. The Rinkheong forest consists of the country drained by the river of that name and its feeders the Laylon and Pharoha Kheongs, down to ridges connecting the peak of Alaisurri and the ridge of Bellasurri, opposite the water-parting of the Laylon and Soobalong Kheongs. The hills are steep in the upper, and of more gentle slopes in the lower part of the area, where they enter the joomed lands near the large Chakma village of Relapu. The soil is good, the rock apparently tertiary, and the vegetation fine.

3. On the level land on the banks of the river is the usual forest of Kúm (*Adina sessilifolia*), *Albizzia procera* and *stipulata*, *Terminalia bellerica*, *Duabanga sonneratioides*, *Anthocephalus cadamba*, and a few jarúl (*Lagerstrœmia Reginæ*). As the hills begin to rise, dense forest of large timber is met with, the most prominent trees in which are gurjun (*Dipterocarpus* sp. sp.), *Tetrameles nudiflora*, *Artocarpus chaplasha*, *Anogeissus acuminata*, and *Swintonia Schwenckii* (Boilsur), the undergrowth containing numerous seedlings of chaplis, kandele, nagesur, tali, and other valuable trees, ready at the fall of any of the forest giants over head to start off afresh and form good timber forest. After a time this forest changes gradually, bamboos become more common, and the chief timber trees are toon, gamhar, *Stereospermum chelonoides*, *Schima Wallichii*, and laurels, most of them of large size and towering over the bamboos and scrub below.

4. There has been very little cutting in the Rinkheong forest, and only a few places near the lower boundary appear to bear traces of having been joomed. In several localities gurjun trees which had been tapped for wood-oil were noticed, and from one or two localities boats had evidently been cut,

the path they had been taking along to the riverside being still marked by the poles which had been cut to make rollers. Bamboo-cutters' rafts often penetrate far up, it being probable that the protection afforded by the frontier guard stations of Pharoha, Ramajan, and Polytai has induced the Bengali wood-cutters to proceed so far in search of the best descriptions of bamboo, such as the ora and dolu. The Rinkheong forest will prove eventually very valuable, as its good water communication and the proximity of the mouth of the river to Chittagong will render the extraction of timber, bamboos, and forest produce generally much easier than it is from the more distant Kasalong reserve.

5. The Officiating Conservator also visited the Sitapahar plantation reserve, and made proposals for an extension of the area, so as to make a more compact block, simplify the boundaries, add a small extent of land on the banks of the Karnafuli still covered with forest, and take in some good land suitable for growing teak and mahogany.

6. In April the Sungoo forest was visited by Mr. Chester, who reported that the forest was the richest of those taken up in Chittagong in fine timber. Mr. Chester reported that it consisted of steep, often precipitous, slopes. The formation is probably tertiary, and the rock consists of more or less shaly sands and clays, the decomposition of which gives a light loamy soil of good quality for forest growth. The whole area was found to be covered with high timber forest untouched by the axe, and containing a very small area indeed of land which had ever been joomed. The whole of the hill sides were covered with forest, in which respect the Sungoo differed from most other forests in Chittagong, which have generally a good deal of bamboo and scrub on the upper parts of the hills. The chief trees found were—

Jarúl (*Lagerstræmia Reginæ*)	...	...	Plentiful and very fine.
Toon (*Cedrela toona*)	...	...	Common.
Chaplis (*Artocarpus chaplasha*)	...	...	Ditto
Badana (*Quercus spicata*)		..	Ditto
Gurjun (*Dipterocarpus turbinatus and pilosus*)		.	Ditto
Kandele (*Calophyllum polyanthum*)		...	Ditto
Nagesur (*Mesua ferrea*)	...	...	Ditto, but small.

while the mooli (*Melocanna bambusoeoides*) and ora (*Dendrocalamus Brandisii*) bamboos were common. The latter bamboo is seeding this year throughout the Hill Tracts. Mr Chester says that, if some rocks which block up the river near the mouth of the Thendoo Kheong were removed, there would be no difficulty whatever in the export of timber from this forest by the Sungoo river.

7. These two proposed reserves, viz. the Rinkheong and the Sungoo, were gazetted in a notification dated 22nd April 1879, under section 4 of the Indian Forest Act. It is hoped that they, as well as the additions to the Maiani (henceforward the Kasalong reserve), Sitapahar, and Matamori reserves, notified under section 4 in notification of 18th May 1878, will shortly be finally notified under section 19, and that then we shall be able to commence a proper system of work.

8 In communication with the Commissioner, it has been decided to examine next year the forests in the Soobalong valley north of the Rinkheong forest, as well as those in the Bagkhali, Eadgong, and Thalaongri valleys east of Cox's Bazar. With these areas will probably terminate the selection of reserved forests in the Chittagong division, unless it may be found possible to secure an area fit for reservation on the south side of the Fenny river.

9. After his return to head-quarters, the Officiating Conservator examined the following blocks of Government khas land in the Darjeeling Hills, the transfer of which to the department has long been intended :—

The *Babookhola* forest, known also as Captain Cornish's land, lies at the head waters of the Mahanadi. It contains a great deal of valuable timber, chiefly oak and chestnut, in the upper part, while the lower portion consists principally of second growth forest of good quality on the ridges and high forest of big timber in the valleys. Its reservation is extremely important when the evil effects of the denudation of the head waters of rivers is seen, as it may be seen on either side of Babookhola, in the shape of the landslips about the Pagla Jhora and at Fogotar.

The *Pugraingbong* forest is a piece of land which will be very important as a reserved forest to complete the boundary of the Goompahar range. It contains principally big timber, oak, chestnut, magnolia, and other kinds, and lies on the upper part of the Nagrispur, on the Rayem river, a tributary of the Balasun. It has been a good deal damaged by indiscriminate grazing, and to a certain extent by lopping, but will quickly recover if protected carefully. Proposals for the reservation of these tracts, as well as for the reservation of the lands purchased in the Terai, are now before the Commissioner.

2.—Area and Boundaries of Reserves.

10. The year under review has been a very important one as regards the area of reserved forests, in consequence of the publication of the notification under section 34 of the Forest Act of all the forest lands in Bengal whose reservation under that section was necessary. The notification was dated 23rd January 1879, and may be found in Appendix A.

11. In consequence of this notification considerable changes have been made in the area. As stated in paragraph 5 of the Forest Administration Report for 1877-78, the forests of the Sonthal Pergunnahs have not been retained, and the 400 acres in the Saranda Pir, in Singbhoom, and the Koderma forests, in Hazareebagh, have been omitted from the notification. This omission, however, is only temporary. Upon receipt of report of the completion of the demarcation of the Koderma reserve it was, being too late for gazetting under section 34, re-gazetted under section 4 of the Indian Forest Act. The final notification under section 19 will probably issue very shortly. The Saranda forests were to have been examined this year; but the services of Mr. Johnston, the only officer available, being required in Julpigoree, the work was postponed, and will be completed early next season.

12. In the Annual Report for 1877-78, paragraph 5, it was stated that an increase of 1,040 square miles would be made during the current year. That this increase is not shown in the return is merely due to the fact that it was not found practicable to complete the demarcation and settlement of the large new areas in the Teesta and Chittagong divisions during the year; and it will therefore be well to show what areas have been gazetted under section 4 of the Act, and likely before 1st April 1880 to become permanent reserves under section 19.

In Notification of 18th May 1878.		
Chittagong Division—		
Kasalong forest	... ...	780 square miles.
Sitapahar addition	... ...	
Matamori „	... ...	
In Notification of 28th July 1878.		
Teesta Division—		
Teesta-Chel block	... ...	190 square miles.
Jeet and Cheechu „	... ...	
Rushett „	... .	
Nar „	... ...	
Ne „	... ...	
Mo „	. ... .	
Juldaka „	... .	
Suckain „	... .	
In Notification of 16th October 1878.		
Julpigoree Division—		
Rehti block	. ...	19 square miles.
Dumchi addition ..	. ...	
Teeti block	. ...	
In Notification of 22nd April 1879.		
Chittagong Division—		
Rinkheong forest	... ...	370 square miles.
Sungoo „	. ...	
In Notification of 26th May 1879.		
Hazareebagh Division—		
Koderma forest	... ...	31 square miles.
	Total	1,390

Besides these areas, there will be the purchased lands in the Kurseong division, the Babookhola and Pugraingbong lands, a further area to be made over by the Cinchona Department, and some small areas to be examined in Julpigoree and Buxa. Thus the distribution of forest will be by the end of 1879-80, or soon after, as in the subjoined table :—

Name of Division.	Area in square miles.						Himalayan and sub-Himalayan forests.	Lower Bengal and Chota Nagpore forests.
	At the beginning of 1878-79.	Added during the year.	Excluded during year.	Total.	Expected increase.	Total.		
Darjeeling	26	11½	½	37	3	40	40	.....
Teesta	57	9	.....	66	190	256	264	.....
Kurseong	78	21	.....	99	18	117	117	.....
Julpigoree	152	.....	4	148	19	167	167	.....
Buxa	250	.....	.....	250	5	255	255	.....
Palamow	216	.....	.....	216	.....	216	.....	216
Hazareebagh	60	.....	60	.....	31	31	.....	31
Singbhoom	400	.....	400	.....	400	400	.....	400
Sonthal Pergunnahs	40	.....	40	.....	.....	.....	.....	.....
Sunderbuns	1,581	.....	.....	1,581	.....	1,581	.....	1,581
Chittagong	570	.....	.....	570	1,150	1,720	.....	1,720
Total ...	3,430	41½	504½	2,967	1,816	4,783	846	3,948

13. The following areas in the open Sunderbuns in the district of 24-Pergunnahs and Jessore were during the year gazetted as protected under chapter IV of the Indian Forest Act, and rules for their management (see Appendix B) have been drawn up and published with the sanction of the Government of India :—

	Square miles.
In 24-Pergunnahs	1,875
„ Jessore	50

14. The "unreserved forests" given in last year's report have been excluded during the year under review through their not having been made "protected forests" under the Act. The area in Julpigoree still remains under the department; and that in Chittagong is managed by the Deputy Commissioner of the Chittagong Hill Tracts. It is likely that the Khoorda forests, in the Pooree district of Orissa, may shortly be gazetted "protected forests" under the Act, but left at present under the management of the Collector.

15. *Demarcation.*—The progress made during the year is shown in the following table, separate columns being given for forests actually reserved and for such as have as yet only been preliminarily notified :—

Name of Division.	Area demarcated in square miles. Reserved Forests.				Forests notified under Section 4 or about to be so.		
	At beginning of 1878-79.	Demarcated in 1878-79.	Not yet completed.	Total.	Demarcated.	Not demarcated.	Total.
Darjeeling	24	1	12	37	.....	3	3
Teesta	55	11	.....	66	114	76	190
Kurseong	74	17	8	99	15	3	18
Julpigoree	134	14	.....	146	19	.....	19
Buxa	250	.....	.....	250	.....	.....	.....
Palamow	179	.....	37	216	.....	.....	.....
Hazareebagh	.....	.....	.....	.....	31	.....	31
Singbhoom	.....	.....	.....	.....	.....	.....	.....
Sunderbuns	1,581	.....	.....	1,581	.....	.....	.....
Chittagong	570	.....	.....	570	.....	1,150	1,150
Total ...	2,867	43	57	2,967	179	1,232	1,411

16. The *boundary records* are being gradually proceeded with. The records for the following forests have been completed and the boundaries carefully mapped :—

Darjeeling Division.

Tukdah Range—
Tukdah block.
Poomong „

Teesta Division.

Rangít Range—
Seem Jhora block.
Kalimpung Range—
Rinkinpung block.
Kalimpung ,,
Dumsong ,,
Mayrong ,,
Payong ,,

Julpigoree Division.

The Apalchand forest.
Tondu ,,
Rehtee ,,
Dulgaon ,,
Dumchi ,,
Khairbari ,,
Teeti ,,

Buxa Division.

The whole.

Chittagong Division.

The Matamori reserve.

Hazareebagh Division.

The Koderma reserve.

Each record consists of a map sheet giving a skeleton boundary, all posts being carefully marked with their numbers, and the information completed by a table of angles and distances and a description of each boundary mark. Sufficient data are now available for the boundary records of most of the remaining forests in the Darjeeling division, for the rest of those demarcated in the Teesta division, for nearly the whole of the forests of the Kurseong and the remainder of the Julpigoree divisions, and for the Sitapahar reserve in Chittagong. It is hoped that most of these may be mapped out and recorded during the present season.

3.—Protection and Improvement.

17. The *superior establishment* consisted on the 1st April 1879 of—

1	Conservator.
3	Deputy Conservators.
7	Assistant Conservators.
2	Sub-Assistant Conservators.
13	officers.

The Conservator, Dr. Schlich, and one Assistant Conservator, Mr. Davis, are on leave, while since the end of the year one Deputy Conservator has gone on leave and an Assistant Conservator has died, so that the Bengal establishment is now short of three officers in the place of one dead and two on leave.

18. For *subordinate establishment* a monthly allowance of Rs. 4,000 was allowed during the year, which has been increased for 1879-80 to Rs. 5,000.

On the 1st April 1879 the following forest and depôt establishment was entertained:—

Rangers	7
Foresters	58
Forest guards	151
Total forest staff ...	216

And in office establishment of—

Clerks		17
Peons		23
Total office staff ...		40
Grand total of subordinate staff ...	256	officials,

involving a monthly expenditure of Rs. 4,658. This, however, includes the establishment of the Chittagong Hill Tracts not now included.

19. The staff of rangers and foresters to be entertained during the year 1879-80 will be—

	Rangers.	Foresters.	Total.
Darjeeling division	2	2	4
Teesta „	2	3	5
Kurseong „	2	3	5
Julpigoree „	1	4	5
Buxa „	2	5	7
Palamow „	0	5	5
Sunderbuns „	5	30	35
Chittagong „	2	4	6
Hazareebagh „	0	1	1
	16	57	73

and 163 forest guards will also be entertained, making a total of 236 officials on forest establishment.

The alteration in *office establishment* will be very slight. It will consist of 18 clerks and 24 peons—total 42 persons—at a monthly cost of Rs. 1,050.

20. *Breaches of Forest Rules.*—During the year 74 cases were instituted, involving 247 persons. It will be seen from form 48 that in only 38 of these cases were convictions obtained; that, as usual, almost all the cases instituted in the northern divisions resulted in convictions, while the percentage of convictions in the Sunderbuns was small.

The total number shows a decrease from former years, while the number of convictions in cases of injury to the forests by fire shows that the forests are being better looked after. It is hoped that the results of these cases may be that in future the forests will be protected from fire, while no necessity for prosecutions will arise.

21. *Roads and Bridges.*—As well as repairing and improving existing roads, the following new roads have been cut during the year:—

	Miles.
Darjeeling division	1
Kurseong „	8
Buxa „	9½
Total ...	18½

The Teesta Valley Road, adverted to in paragraph 19 of Dr. Schlich's report of last year, is, we are glad to say, in course of construction by the Public Works Department.

22. *Buildings and Boats.*—The following new buildings and boats have been constructed during the year:—

Darjeeling Division.

(1) A ranger's house at Goompahar.
(2) „ „ Jore bungalow.
(3) A firewood godown at Darjeeling.

Kurseong Division.

(1) The divisional head-quarters bungalow at Dhobijhora (commenced).
(2) A ranger's house at Chenga.

Teesta Division.

(1) The divisional head-quarters bungalow at Kalimpung (commenced)

Buxa Division.

(1) A store godown at Rajabhatkhawa.

Sunderbuns Division.

(1) A ranger's house at Khulna.
(2) ,, ,, Koyra.
(3) Twelve station boats.

The small huts at Pashok, Borojhar, and Ramshai Hât were destroyed by fire; the first two were, however, uninhabitable; and the last rarely, if ever, used in consequence of the scarcity of water near it.

23. *The following is a list of buildings for which rent is paid by forest officers*:—

1. The Julpigoree forest bungalow—Cost Rs. 1,800; rent Rs. 10 per month.
2. The Buxa forest bungalow—Cost Rs. 1,000; rent Rs. 7 per month.

List of Rest-houses which have cost more than Rs. 200 *each, and for the occupation of which no rent is paid.*

		Cost. Rs.
(1)	The Rungbul plantation bungalow	500
(2)	The Jore bungalow ranger's house	500
(3)	The Goompahar ranger's house	500
(4)	The Bamunpokri plantation bungalow	1,000
(5)	The Sivoke depôt bungalow	2,000
(6)	The Chenga ranger's house	500
(7)	The Sitapahar plantation bungalow	500

24. During the year 1879-80, besides completing the bungalows at Dhobijhora and Kalimpung, a divisional head-quarters bungalow will be built at Rungamattia, in the Chittagong Hill Tracts, at a cost of Rs. 2,500, and a bungalow at Tukdah, in the Darjeeling division, at the same rate. A ranger's house will be built for the Shukna range in the Kurseong division, and small houses for rangers or foresters in the Teesta, Julpigoree, and Chittagong divisions.

25. The bungalow at Rungirum has during the year been made over to the Forest Department, as well as the grounds round it, which formed the Botanical Garden which has now been removed to Darjeeling. This bungalow will now be the head-quarters of the Tukdah range, in which a Sub-Assistant Conservator is stationed, and will be of the greatest use in facilitating forest work and the supervision of the planting works to be undertaken or in progress at Poomong and Rungirum. The public bungalow at the same place has also been placed under the management of the department, who are responsible for its repairs and for keeping up the Garden, while the fees payable for its occupancy are credited to the department.

26. *Reproductive measures.*—During the year an area of 207 acres has been added to the plantations, making up the total to 843 acres. The distribution is as follows:—

Name of Division.	Oak, chestnuts, magnolias, and walnuts.	Conifers.	Spanish chestnuts, toon, and walnut.	Teak, toon, sâl, and sissu.	Sâl.	Bamboos.	Baobab.	India-rubber.	Total.
Darjeeling	251	.....	10	.....	.....	.....	.....	.....	261
Kurseong	.....	13	.....	213	.....	1	.....	1	228
Julpigoree	.....	.....	.....	3	.....	.....	.....	.....	3
Buxa	.....	.....	.....	.....	51	.....	.....	.....	51
Sunderbuns	.....	.....	.....	.....	.....	.....	1	.....	1
Chittagong	.....	.....	.....	270	.....	.....	.....	.....	270
Total ...	251	13	10	486	51	1	1	1	814

The description of the different works done will be found in section II, under the head of the different divisions.

27. Regarding the experiments made with economic plants in the Botanical Garden, Calcutta, Dr. King has sent the following communication, which is here given in accordance with the orders of Government :—

" *India-rubber.*—The seedlings of Ceara rubber (*Manihot glaziovii*), received from the Royal Garden, Kew, continue to grow well, and several of them are now about fifteen feet high. A quantity of seed of this species was received from the Director of the Botanical Garden at Peradeniya, in Ceylon, but up to the end of the financial year none of it had germinated. The seed having a very dense hard coat, it will likely lie a long time in the ground before it begins to sprout.

"An additional year's experience only strengthens my conviction that the Para rubber (*Hevea Braziliensis*) is unsuited to the climate of Bengal. It is a thoroughly tropical plant, and unless in the south of Burmah, or in Malabar, no suitable home will, I fear, be found for it within the limits of the Indian Empire. Some seeds of an African species of rubber (*Landolphia*) were received towards the end of the year from Dr. Kirk, Her Majesty's Consul at Zanzibar. These did not look very hopeful on arrival, but possibly some of them may germinate.

" *Other Exotic species.*—A quantity of seed was received without name from the India Office some three years ago. This was duly sown, but the seedlings not having flowered, I was unable in my last report to give the name of the species. Some plants, however, flowered during the past year, and I am now able to say that they belong to the species known familiarly as *Wilayati Babul*, and botanically as *Acacia Farnesiana*, a shrub which is common in gardens in all parts of India.

"The seedlings of *Carob* (*Ceratonia siliqua*), planted some years ago at the request of the Government of India, continue to languish, and they give no promise of accommodating themselves to a climate and soil so lately different from those of which this species is a native.

" The plants of *Crosopis pallida*, reported on last year, continue to thrive; but the *Eucalypti* from Queensland give little more hope of succeeding in Calcutta than did the Tasmanian species, by the planting of which certain sanguine people hoped to abolish malaria on the plains of India.

" A large demand still continues for seedlings of mahogany and rain-tree (*Pithecolobium saman*), and many hundreds of each were distributed from the Botanical Garden at Calcutta during the year."

28. During the year few experiments were made by the department. The India-rubber and bamboo plantations at Bamunpokri continue to thrive, and the Spanish chestnuts at Rungirum have not improved in appearance. Their bushy growth and twisted knotty branches show that they are unsuited to the climate, and it has consequently been decided by Government that no more seed shall be sent from Europe. Since the close of the year seed of the mahogany and of the Ceara rubber have been sent by the Government of India; they will be tried at Chittagong, where they will probably be more likely to succeed than in the Terai and Dooars, and where the personal supervision of an officer is available. A large number of rooted plants of mahogany were also received from Dr. King, and will be planted out in the Sitapahar reserve.

29. *Creeper cutting.*—In the Buxa division creepers were cut in block III, compartments 12 to 16, area 6,209 acres. In Kurseong creepers were cut in the Bamunpokri forest and in the Shukna-Teesta block.

In Chittagong 14,669 trees of valuable species in the Maiani reserve were cleared of creepers.

30. *Protection from fire.*—During the year under review, fire protection operations were not very successful, the year having been exceptionally dry, and the wind in March and April exceptionally strong; but of 190,000 acres attempted to be protected, we were successful with 107,000.

The visit of the Inspector-General to the forests of Julpigoree and Buxa was productive of some good, for his advice on the protection works of Apalchand, Tondu, Muraghat, and Buxa reserves was most useful, and to a great extent accounted for the saving of a large portion of each of these reserves. It was chiefly owing to the energy of the Assistant Conservator and his forester that the Bamunpokri forest in the Kurseong division was saved; the utmost

exertions were necessary, as hardly an acre of the surrounding country escaped fire. At Pankabari, just above Bamunpokri, tea houses and factories, and several acres of tea were destroyed, while a sudden fire which sprung up just close to the west boundary at Besurbati destroyed some tents and other property belonging to soldiers who were then encamped on their way to the convalescent depôt at Darjeeling. Fires raged throughout the hills, and even as late as this (July) many blackened patches may be seen on the hill sides opposite Darjeeling, the result of large jungle fires which ascended far into the hills and did immense damage, especially in those forests where there was much undergrowth of small bamboo.

We shall use every possible endeavour this year to prevent fire, and to protect as many of the forests as possible; and if we can only obtain the assistance not only of the district officers who are usually willing to help, but of the Police, Public Works Department, and of tea-planters, we may manage to be successful in protecting our forests, unless any very unforeseen weather occurs.

4.—Yield and Working of the Forests.

31. The chief works have been the supply of firewood and charcoal to the station and district of Darjeeling, of sleepers to the Northern Bengal State Railway, and of timber for the Ganges, Darjeeling, Julpigoree district, and Rungpore-Dhubri roads.

32. The departmental timber operations are thus shewn—

a.—Trees felled during the year.

Divisions.	Sál.	Upper hill trees.	Gambhari.	Others.	Total.
Darjeeling	.....	2,033	.....	.....	2,033
Teesta	107	.....	.....	.....	107
Kurseong	807	.....	20	23	850
Julpigoree	515	.....	.....	.....	515
Buxa	2,973	.....	.....	3	2,976
Total ...	4,402	2,033	20	26	6,481

b.—Timber brought to Depôt from the Forests.

Divisions.	Toon logs.	Sál logs.	Sissu logs.	Gambhari logs.	Sundri logs.	Sleepers.	Other pieces.	Total. Number.	Total. C. feet.
Darjeeling	.....	.....	.....	.....	.....	.....	34,670	34,670	3,083
Teesta	.....	.....	.....	.....	.....	60	.....	60	80
Kurseong	.....	433	.....	20	.....	12,083	596	13,132	29,278
Julpigoree	2	209	1	.....	.....	238	611	1,061	1,806
Buxa	.....	437	.....	.....	.....	19,617	4,814	24,868	43,468
Sunderbuns	.....	.....	.....	.....	36	.....	.....	36	365
Total ...	2	1,079	1	20	36	31,998	40,691	73,827	78,682

Add—

		Mds.	s.
Darjeeling Division ...	Firewood	1,70,517	20
	Charcoal	13,057	10
Julpigoree " ...	Firewood	1,525	0
	Total ...	1,85,099	30

		No.
Kurseong Division ...	Bamboos	278

c.—Transferred from one Depôt to another.

Divisions.	Sál logs.	Gambhari logs.	Sleepers.	Other pieces.	Total. Number.	Total. C. feet.
Teesta	9	.....	7	.....	16	224
Kurseong	215	19	.....	230	464	6,167
Julpigoree	44	.....	191	96	331	1,191
Buxa	732	.....	12,652	340	13,724	38,783
Total ...	1,000	19	12,850	666	14,535	46,365

Add—

		No.
Kurseong Division ...	Bamboos	278

d.—Timber removed from Depôt by Purchasers.

Divisions.	Toon logs.	Sál logs.	Sissu logs.	Gambhari logs.	Sundri logs.	Sleepers.	Other pieces.	Total. Number.	Total. C. feet.
Darjeeling	.....	.....	.....	.....	.....	.....	222	222	139
Teesta	.....	9	.....	.....	.....	195	.....	204	475
Kurseong	.....	387	.....	18	.....	11,715	36	12,156	26,788
Julpigoree	1	156	1	.....	.....	630	937	1,705	3,878
Buxa	.....	1,306	7	.....	.....	18,449	1,494	21,256	61,574
Sunderbuns	.....	.....	.....	.....	35	.....	.....	35	352½
Total ...	1	1,858	8	18	35	30,989	2,689	35,578	93,206½

Add—

			Mds. s.
Darjeeling Division ...	Firewood	... ...	1,69,086 0
	Charcoal	... ...	12,641 20
Julpigoree „ ...	Firewood	... ...	625 0
		Total ...	1,82,352 20
			No.
Kurseong Division ...	Bamboos	... ...	250

e.—Annual Timber Account.

	Pieces.	C. feet.		Pieces.	C. feet.
Balance in hand at commencement of year	15,703	95,575	Removed by purchasers	35,578	93,206½
Received from the forests during the year	73,827	78,082	Cut into sleepers, &c.	883	17,710
Transferred from one depôt to another ...	14,535	46,355	Transferred from one depôt to another...	14,533	46,355
			Lost and used by the department ...	34,937	3,084
			Balance at close of the year	18,132	61,656½
Total ...	104,065	222,012	Total ...	104,065	222,012

33. As desired in the orders of the Government of India in their review of the report for 1877-78, the following statement has been compiled shewing the quantity of timber brought to depôt, the outlay on account of it, and the quantity sold and amount realized during past years:—

Years.	Number of statement.	Brought to depot. C. feet.	Brought to depot. Amount paid.	Number of statement.	Sold. C. feet.	Sold. Amount realized.
			Rs.			Rs.
1874-75	27	58,060	21,746	26	65,917	45,530
1875-76	27	77,297	42,874	26	55,900	40,302
1876-77	58	149,354	76,538	57	59,873	44,915
1877-78	paras. 34-38	106,577	1,34,306	paras. 34-38	101,035	1,70,621
1878-79	.....	78,082	1,20,624	.....	93,206	1,66,649
Total ...	.....	869,370	3,86,150	.....	375,931	4,77,017

34. Financially the departmental timber operations show as follows:—

Name of Division.	Quantity sold.	Average amount realized.	Average expenditure including shares of establishment, elephants, tools, &c.	Surplus.	
		Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling ...	Firewood and charcoal, 1,81,727½ mds.	27 4 10	21 2 7	6 2 3	Per 100 maunds.
Kurseong ...	Timber, 26,788 c. ft.	1 6 7*	0 10 4	0 12 3	Per cubic foot.
Buxa ...	Do. 50,310 „	1 6 8†	0 11 4	0 11 4	Ditto.

* Average calculated on amount actually received during the year, plus Rs. 17,347 outstanding on account of sleepers sold during the year, but not paid for till April.

† Average calculated on amount actually received during the year, less Rs. 20,060 realized by sale of 8,449 sleepers = 11,265 c. feet of previous year.

35. In the Julpigoree division the timber operations were very small, and no departmental timber work was undertaken in the rest. Compared with former years the following table shows the results :—

Name of Division.	Surplus.						
	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	Average.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling ...	.....	.....	.....	7 15 4	6 2 3	7 0 9	Per 100 maunds of firewood and charcoal.
Kurseong ...	0 5 10	0 6 3	0 3 1	0 11 10	0 12 3	0 7 10	Per cubic foot.
Buxa ...	0 5 2	0 9 4	0 8 0	0 5 5	0 11 4	0 7 10	Ditto.

which shows that the agreement of the rates in the Kurseong and Buxa divisions alluded to in paragraph 35 of last year's report is still closer than then, and that the net surplus is Re. 0-7-10 per cubic foot for five years' working, which must be considered as satisfactory.

36. The following figures show the quantities of material removed from the forests by purchasers and consumers :—

Description of produce.	Darjeeling Division.	Teesta Division.	Kurseong Division.	Julpigoree Division.	Buxa Division.	Palamow Division.	Sunderbuns Division.	Chittagong Division and Hill Tracts.	Total.
Green trees ... Number ...	747	74	294	7	4	200	.....	.....	1,322
Green trees ... Maunds ...	.....	.....	.....	.....	.....	.....	1,401,938½	.....	1,401,938½
Timber in boats ...	.....	.....	.....	.....	.....	.....	.....	2,569	2,569
Planks ...	.....	.....	.....	.....	.....	.....	.....	3,105	3,105
Dry trees ... Number ...	1	1	151	2,149	1,575	.....	.....	4,112	7,989
Dry trees ... Cubic feet ...	307	.....	.....	.....	.....	.....	.....	156	463
Firewood ... Tickets ...	35	9	2	.....	.....	.....	.....	.....	46
Firewood ... Carts ...	.....	.....	7	.....	137	.....	.....	.....	144
Firewood ... Loads ...	.....	.....	30	.....	32	.....	.....	.....	62
Firewood ... Kilns ...	.....	.....	2	.....	.....	.....	.....	.....	2
Firewood ... Maunds ...	.....	.....	.....	.....	600	56	5,224,174	.....	5,224,830
Bamboos ... Number ...	900	14,670	500	200	1,857	1,725	.....	9,840,065	9,859,917
Bamboos ... Permits ...	204	.....	.....	.....	.....	.....	.....	.....	204
Grazing ... Head of cattle ...	.....	356	9,816	.....	1,003	.....	.....	.....	11,865
Grazing ... Tickets ...	841	36	493	.....	.....	Unknown	.....	.....	1,370
Grazing ... Fodder bundles...	.....	6	.....	.....	.....	.....	.....	.....	6
Cane ... Tickets ...	8	.....	47	11	.....	.....	.....	.....	66
Cane ... Bundles ...	.....	.....	.....	.....	.....	.....	.....	984,441	984,441
Cane ... Loads ...	.....	164	443	.....	.....	.....	.....	.....	607
Cane ... Maunds ...	.....	.....	.....	.....	.....	.....	8,299	.....	8,299
Thatch-grass ... Bundles ...	.....	.....	19,685	.....	.....	135	.....	1,543,294	1,563,114
Thatch-grass ... Loads ...	.....	1,800	.....	.....	.....	.....	.....	.....	1,800
Permit for lime-burning ...	.....	.....	1	.....	1	.....	.....	.....	2
Mango fruits ...	.....	.....	.....	.....	.....	Unknown	.....	.....	.....
Hurrah fruit, maunds ...	.....	.....	.....	.....	.....	7	.....	.....	7
Mowah flowers ...	.....	.....	.....	.....	.....	Unknown	.....	.....	.....
Sabai grass bundles...	.....	.....	.....	.....	.....	140	.....	.....	140
Leo ...	.....	.....	.....	.....	.....	Unknown	.....	.....	.....
Golpatta ...	.....	.....	.....	.....	.....	.....	2,088,610	.....	2,088,610
Nall ...	.....	.....	.....	.....	.....	.....	39,934	.....	39,934
Shells ...	.....	.....	.....	.....	.....	.....	65,452	.....	65,452
Hental ...	.....	.....	.....	.....	.....	.....	825	.....	825
Fruits ...	.....	.....	.....	.....	.....	.....	50	.....	50
Wax and honey permits ...	.....	.....	.....	.....	.....	.....	968	.....	968
Gurjun oil, maunds...	.....	.....	.....	.....	.....	.....	.....	143	143

5.—Financial Results.

37. The financial results of the department since 1871 are thus shown, continuing the table given in paragraph 37 of last year's report—

Years.	Receipts.	Charges.	Surplus.	Area of reserved forests.
	Rs.	Rs.	Rs.	Square miles.
1871-72 ...	87,260	67,506	19,754	106
1872-73 ...	1,16,690	62,554	54,136	108
1873-74 ...	1,23,732	81,068	42,664	120
1874-75 ...	1,85,914	98,654	87,260	1,407
1875-76 ...	1,98,274	1,39,086	59,188	2,585
1876-77 ...	2,22,401	2,11,689	10,712	3,390
1877-78 ...	4,32,363	2,61,112	1,71,251	3,434
1878-79 ...	4,16,027	3,38,675	77,352	2,967

These figures show that the results have been very much the same as last year, and if we consider that out of the expenditure a sum of Rs. 63,500 was devoted to the purchase of land, reducing the real amount of charges to Rs. 2,75,175, and increasing the surplus to Rs. 1,40,850, the results of the departmental works for the year cannot but be looked upon as satisfactory.

The value of stock on hand has fallen by Rs. 33,400, making the value of the year's transactions Rs. 1,07,450.

38. In paragraph 5 of the orders of the Government of India on the report for 1877-78, No. 124, dated February 1879, it was requested that the figures of the form submitted in accordance with their orders in their No. 309, dated 20th February 1877, should be based upon an analysis in detail of the annual accounts.

The following table will show the arrangement which seems most fair, while adopting generally the distribution of the charges as usually arranged :—

	Departmental timber operations.	Other revenue.	Formation, protection, and improvement of forests.	Total.
	Rs.	Rs.	Rs.	Rs.
Receipts	1,66,649	2,49,378	.....	4,16,027
Expenditure—				
A I	83,578	.....	.....	.....
„ II	.....	12,725	.....	.....
„ III	419	56	.....	.....
„ VI	3,866	3,885	3,885	.....
„ VII	.....	.....	8,362	.....
„ VIII	.....	.....	86,877	.....
„ IX	.....	7,262	.....	.....
B Direction	8,447	8,447	8,448	.....
B 1st five divisions	24,314	12,157	12,158	.....
B Remaining „	.....	26,894	26,895	.....
Total ...	1,20,624	71,426	1,46,625	3,38,675
Surplus ...	46,025	1,77,952	.....	.....
Deficit ...	.....	.....	1,46,625	77,352

From this it appears that the actual financial results of the year are satisfactory, the greater deficit under the third head being due to the purchase of land as already explained. In spite of that expense, and after deduction of all charges, the cash surplus is Rs. 77,352 or 18 per cent. of gross receipts. If the money paid for purchase of land is omitted, the surplus is 34 per cent. of gross receipts.

39. If as desired by the Government of India we arrange the receipts and expenditure for the reserved and unreserved forests separately, we shall have the following :—

Divisions.	Reserved Forests.			Unreserved Forests.			Remarks.
	Receipts.	Charges.	Surplus or deficit.	Receipts.	Charges.	Surplus or deficit.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Darjeeling	66,472	52,866	+13,605	.....	.....	.....	The small expenditure on the unreserved forests would not be worth entering, even if it were possible to separate the account.
Teesta	3,086	13,746	—10,660	.....	.....	.....	
Kurseong	35,244	1,01,328	—66,084	.....	.....	.....	
Julpigoree	8,286	14,904	—6,618	.....	.....	.....	
Buxa	95,714	51,389	+44,325	.....	.....	.....	
Palamow	757	15,240	—14,483	.....	.....	.....	
Sunderbuns	1,72,546	36,233	+1,36,314	.....	.....	.....	
Chittagong	1,701	18,108	—16,407	7,212	2,131	+5,081	
Chittagong Hill Tracts ...	.....	.....	.....	24,989	5,279	+19,710	
Hazareebagh	.....	2,087	—2,087	.....	.....	.....	
Direction	20	25,364	—25,343	.....	.....	.....	
Total ...	3,83,826	3,31,265	52,562	32,201	7,410	24,791	

The gross receipts calculated upon 2,967 square miles of reserved forest are therefore Rs. 130, while those for the unreserved forests are Rs. 6 per square mile. But, as has already been pointed out, the area of the reserved forests is really much greater than 2,967 square miles, and a portion both of receipts and expenditure belong to forests not yet permanently reserved under either section 34 or section 19 of the Forest Act.

SECTION II.—RESERVED FORESTS.

A.—DARJEELING DIVISION.

1.—Area and Boundaries.

40. (*a*)—*Area.*—According to last year's report the area stood at 26 square miles on the 31st March 1878. Since then a large additional area of 3,000 acres at Goompahar was made over to the department by the Darjeeling Municipality, making a total of 7,438 acres or 12 square miles for the *Goompahar range.* The range will shortly be further increased by an area of about a square mile at Pugraingbong. This area has already been described in section 1, paragraph 9.

41. In the *Tukdah range* an area of 400 acres below the road from Darjeeling to the Teesta *viâ* Pashok were given up by the orders of Government to Pemchuder Lama and others on a lease for ten years under certain conditions. This exclusion will free the remainder of the forest from any grazing privilege the lessees may have had. An addition of 75 acres was made at Rungirum, being the lands belonging to the Botanic Garden, whose locality has now been changed to Darjeeling. This area formerly formed part of the forest, and its resumption will much improve the boundary line. An addition of 1,500 acres was also made at Poomong from khas land, thus securing a larger area of land near the crest of the main Tukdah ridge. These additions and exclusions will alter the area of the range to 12 square miles.

42. Under arrangement first made with Dr. G. King, the Superintendent of the Cinchona Cultivation, a large area of about 2,500 acres of forest above the road from Darjeeling to Dr. King's head-quarters at Sureil, and including the head waters of the Rungjo and Rungbee rivers, was made over to the department and included in the reserves; this area is very well wooded and will be a most valuable acquisition. Arrangements are in progress for the transfer of a further area at the head of the Reyang valley.

43. In the *Rungbúl range* an alteration of area has been made by an exchange with the proprietor of the Dooteria Tea Estate. The department held two small areas—one at Bing Jhora, and the other below Rungbúl—called "the Agri-Horticultural Block," while between these lay a narrow strip of land belonging to the Tea Estate. An exchange has been effected by transferring the Agri-Horticultural Block and a small portion of the Bing Jhora land to the Tea Estate, and taking in exchange the narrow strip between. The arrangement is most suitable, though the area exchanged amounts only to 97 acres.

44. The three ranges now contain—

	Acres.
Rungbúl	5,687
Tukdah (including Rungbee)	10,467
Goompahar	7,438

It is contemplated to transfer, as soon as arrangements have been made to reserve definitely the Babookhola forest, a portion of the Rungbúl range, the Sepoydura block, to the Kurseong division, where it with the Babookhola, Dhobijhora and Sibakhola forests will form a large range for that division, and be easily supervised by the divisional officer whose head-quarters will be at Dhobijhora.

45. (*b*)—*Demarcation.*—In the *Rungbúl range*, with the assistance of Lieutenant Harman of the Great Trigonometrical Survey, who was appointed during the year to lay down such boundaries as presented any difficulty, the whole of the lines have been completed and demarcated with the exception of a few locations along the Hill Cart Road which are now being done. In the *Tukdah range* the boundary line has been completed throughout.

46. In the *Goompahar range* the line is still in process of demarcation, so many disputed points having occurred that recourse to the survey and settlement officers has had very often to be had; their work has been seriously

impeded this year by the thick clouds of mist and smoke which hung over the hills all through the hot weather. The whole boundary will be completed at a very early date.

(2.)—PROTECTION AND IMPROVEMENT.

47. (*a*)—*Establishments.*—The Sub-Assistant Conservator of Forests, posted according to paragraph 46 of last year's report to the Goompahar range, has been transferred to the Tukdah range. The establishment therefore now consists of the following :—

Rungbúl range.—
1 Forest ranger.
1 Forester.
5 Forest guards.

Tukdah range.—
1 Sub-Assistant Conservator.
1 Forester.
5 Forest guards.

Goompahar range.—
1 Forest ranger.
5 Forest guards.

48. (*b*)—*Breaches of Forest Rules.*—During the year there were seven cases of breaches of Forest Rules, in five of which convictions were obtained. In the other two cases convictions were not obtained, as in one the defendants were discharged with a warning, and in the other the offender absconded and could not be caught. A case was also brought by the department against a forest guard for aiding and abetting unauthorized felling of trees, and he was punished with six months' rigorous imprisonment.

49. (*c*)—*Roads and Bridges* —Hitherto not much has been done in this division by the department, but during the present year a commencement has been made. With base roads, roads from which forest roads can start off, the division is well supplied; the Rungbúl range having at its southern edge the Hill Cart Road, and through it the Old Military Road. The Tukdah range is traversed by the new Teesta road and the road to the Cinchona Gardens, while the Goompahar range is traversed from end to end by the Nepal Frontier road.

The management of the new Teesta road, so far as it passes through forest land, has been undertaken in behalf of the Road Cess Committee, and a grant was made from Provincial Funds for the improvement of the road on the main ridge. This improvement has been effected at a cost of Rs. 1,500, the old tortuous and badly lined paths being replaced by a good road of a uniform gradient for a distance of about a mile between the 4th and 6th miles from Jore bungalow, the worst part of the road.

50. In the Goompahar range a commencement has been made in making a branch cart road from the Goompahar village towards the frontier.

A grant of Rs. 5,000 was received from Provincial Funds, and the first section of nearly a mile (4,900 feet) from Goompahar village to the low saddle where the ranger's house is was laid out by the Conservator, Dr. Schlich, and completed. This road will be most valuable for the extraction of timber and firewood from the hitherto almost unworked Goompahar forest, and will be gradually continued as funds permit.

51. (*d*)—*Buildings.*—Two rangers' houses have been constructed—one at Jore bungalow for the Rungbúl ranger, another at Goompahar for the headquarters of that range. These rangers' houses are on the same plan, and cost each Rs. 500 exclusive of the timber. A depôt godown has been built at the Darjeeling bazar of two-stories, having planked walls and a roof of sheet-iron. The lower story is used for the storage of firewood ; the upper for charcoal for the retail supply of the bazar and station. The cost was Rs. 1,107. Firewood and charcoal godowns of a temporary nature were also constructed at Jore bungalow.

52. (*e*)—*Reproductive measures, Rungbúl Range.*—The eastern part of compartment No 8 of the Rungbúl block was, during the year, planted up by

transplanting from the nurseries plants 10 feet by 5 feet. The following plants were put out :—

		Rs.
Walnut (*Juglans regia*)	... ..	5,916
Champ (*Michelia excelsa and magnolia Campbellii*)		1,547
Oak (*Quercus lamellosa and annualata*)	.	1,280
Ash (*Fraxinus floribunda*)	... ...	6,780
Cypress (*Cupressus tomlosa*)	... ...	6,220
Deodar (*Cederes deodara*)	... ...	1,860
Cryptomeria japonica	... ...	1,620
Total	...	25,158 plants.

The area planted was 40 acres, but portions of it were not filled up, as they were already covered by young growth, and the areas along the beds of the streams were left vacant. The result has been satisfactory. Countings made by the Officiating Conservator over an area of 0·42 acres taken in lines all through the plantation gave —

Walnut	... ...	129	Cypress	... ...	136
Champ	... ...	15	Deodar	... ...	36
Oak	... ...	24	Cryptomeria	... ...	62
Ash	... ...	186	Blanks	... ...	147

or 20 per cent. of vacancies. The growth of some of the plants, especially of the walnut, ash, and cypress, was remarkably good ; but all kinds had grown well, and the success of the year under review, a year which has been a very trying one for transplants, owing to the long dry season succeeded by very heavy late rains, has shewn that there is no doubt that the system inaugurated by Dr. Schilch is not only likely to succeed, but can also be carried out at gradually cheaper and cheaper rates as experience is gained of the characteristics of the trees planted. The cost of this portion was Rs. 257-1-3, or, including tools, coolies' huts, and other accessories, Rs. 346-12. This, however, does not include cost of rearing the plants in nurseries, or share of establishment and other charges, and some years must elapse before we can correctly estimate the cost of these operations. This cost is being kept as low as possible, but the original expenditure on the old plantation will for some time yet be a drag on the general cost as shown in the returns. A fence was constructed round the compartment, and all cattle carefully excluded. At the same time the rest of compartment 7, containing 68 acres lying between the old and new Darjeeling roads, and which had been cleared of timber for the station firewood supply, was sown with seed at stake. The seeds sown were oak, champ, and maple *(Acu Campbellii)*; the maple has come up well all over the area, but the oak and champ are still backward, though it is too early yet to pronounce their germination a failure. Should it be so, the blanks will be filled up during the present season. The next compartment in order would, properly speaking, have been No. 10 beyond the area planted this year; but as it was decided that, owing to the condition of the forest, it would be better to clear and re-plant the Dooteria block, the next area for planting will be the upper portion of that block just below the cart road.

53. The following are the nurseries at present:—

At Rungbúl five nurseries, the old one of which contains about 20,000 seedlings ready for transplanting, the rest have been sown with oaks, chestnut, champ and other kinds which are rapidly coming up well.

At Dooteria three nurseries all with oak, champ, and toon, are doing well.

At Goompahar two nurseries containing oak and champ.

The seed of Australian acacias referred to in paragraph 50 of last year's report has, as therein stated, germinated well; the plants are, however, weak and thin, and scarcely look as if they were likely to succeed.

54. At Rungirum an area of about 5½ acres was added to the plantation; the following transplants being put out at 5 feet by 5 feet :—

Spanish chestnut (*Castanea Vesca*)	955
Walnut	746
Toon (*Cedrela toona*)	3,136
Pipli (*Bucklandia populnea*)	4,820

These are doing well.

The cost was Rs. 110-15 for the actual planting, but on account of its being an experimental plantation for the growth of Spanish chestnut, the cost of clearing is larger than it would ordinarily be. The total cost on the plantation including nurseries was Rs. 385-6-3. It is proposed to commence now to plant up the large areas of land below 6,000 feet in the Rungirum and Senchal Jhora blocks by working in a more systematic and cheaper way. A large nursery has been prepared, which is capable of being watered by irrigation, and sown with toon and pipli seed. The whole of it has germinated very well, and the plants are now being pricked out in beds, so that they will be ready for transplanting next year, some indeed possibly in this. Clearing will be limited to cutting out brambles (*Rubus ellipticus*) and other small straggling bushy plants, all trees and shrubs being left, and the planting will be done in horizontal bands 10, 15, or even 20 feet apart, and five feet apart in the bands. This extension of work was intended, as will be seen from last year's report, and the plants to be used will be toon, pipli, and walnut principally; in many localities numbers of self-sown trees will doubtless aid in lightening the cost and causing the plantation to fill up rapidly.

55. *(f)—Fire protection.*—It is not often that works of this nature have to be undertaken in the upper hill forests usually so damp and so little liable to burn; but the present year, with an exceptionally dry season, has been a bad one for fires not only in the forests of the plains, but extending far into the hills and to a great elevation. For nearly two months the station of Darjeeling was wrapped in a cloud of mist and smoke, the result of the very extensive jungle fires not only in the valleys, but high up on the hills, a large extent of forest on the Tonglo range belonging to the Cheboo Lama, and between 7,000 and 10,000 feet in altitude having been burnt over. A number of small fires occurred in the forests, the only one of any extent being on the top of the Mimm spur in Goompahar, where about two acres of forest were burnt over. The fire was originally lit by a potato cultivation, and passed through the lands of a tea planter into the forest; the planter being close to the spot was able to identify the author of the fire and bring him to justice.

Most of the fires, however, arise from passers-by camping indiscriminately at all points of the public roads through the forest. Arrangements are now being made to institute camping grounds, which will be fire-traced, and to prevent camping at other than these fixed localities.

The damage done by fires in the hill forests is, compared with those of the plains, comparatively greater. The thin barked oaks, chestnuts, and magnolias suffer much more than the thick-barked sâl, saj, and chilanni, while the heavy masses of dry moss on the branches of the trees attract the fire to the tops and smoulder long, the result in most cases being the death of the tree.

3.—Yield and Working.

56. The firewood operations this year were carried on in the remainder of compartment 8 and in compartment 10 of the Rungbúl block, in the Dooteria block, and in the Poomong block of the Tukdah range. A few trees were also cut in the Poomong block of Goompahar.

The trees cut by Government agency are shown in annual return No. 53 attached to this report. The list showing the proportion of species is not given, as was done last year, as the fellings in the Dooteria block, which was the principal one worked, were not completed. Next year the full data for Dooteria block will probably be available, and some useful statistics obtained.

57. The fellings for firewood, charcoal, and scantlings were—

Rungbúl Range.

	Trees.	
Rungbúl block	296	(firewood.)
	26	(scantlings.)
Dooteria block	1,006	(firewood.)
	581	(charcoal.)
	4	(scantlings.)

Tukdah Range.

Poomong block	97	(charcoal.)
Rungirum block	3	(scantlings.)

Goompahar Range.

Poobong block	22	(firewood.)
Ditto	8	(scantlings.)
Total for firewood	1,324	
Do. for charcoal	678	
Do. for scantling	41	

The following quantities of timber, firewood, and charcoal were brought to depôt during the year:—

	No.	C. ft.
Scantlings	3,270	2,430
Shingles	31,400	653
Total Timber...	34,670	3,083

	Mds.
Firewood	1,70,517½
Charcoal	13,057¼

58. The scantlings were cut partly for departmental use and for the Birch Hill Park, partly for the Alipore Jail to be used for bobbins and shuttles.

59. Of the firewood we sold—

	Mds.
To the Public Works Department	12,962
Ditto Commissariat ditto	49,000
To residents of Darjeeling, Jellapahar, and Jore bungalow ...	1,07,124
Total ...	1,69,086

Of the charcoal we sold—

To the Manager, Happy Valley Tea Estate	1,200
Ditto ditto Gielle ditto	1,286·26
Ditto Department Public Works	160
To residents of Darjeeling, Jore bungalow and Jellapahar ...	9,994·20
Total ...	12,641·66

60. The financial aspect of the firewood and charcoal operations is exhibited thus—

	Rs.	A.	P.	
1,81,728 maunds sold realized an average	27	4	10	per 100 maunds.
Expenditure including share of establishments	21	1	4	ditto.
Surplus ...	6	3	6	

The divisional officer considers the falling off from last year to be due to the money spent on godowns which was an extraordinary charge.

61. The number of trees and other produce removed by purchasers during the year is exhibted below:—

Name of Produce.	Number.	Amount.	Rate.	Remarks.
		Rs. A. P.	Rs. A. P.	
Champ	173	4,325 0 0	25 0 0	
Toon	9	225 0 0	25 0 0	
Booke	200	3,000 0 0	15 0 0	
Katus	153	2,295 0 0	15 0 0	
Pipli	12	180 0 0	15 0 0	
Phalat	8	120 0 0	15 0 0	
Kaula	70	700 0 0	10 0 0	
Lali	56	560 0 0	10 0 0	
Chilanni	19	190 0 0	10 0 0	
Gobria	19	190 0 0	10 0 0	
Kabashi	14	140 0 0	10 0 0	
Bhadrassi	3	30 0 0	10 0 0	
Lepchaphal	2	20 0 0	10 0 0	
Katus (half price)	1	7 8 0	7 8 0	Cut on roads.
Lali (ditto)	1	5 0 0	5 0 0	Cut on roads.
Small trees	7	20 0 0	2 13 8	Cut on roads.
Dry and fallen Timber.				
Dry Toon	1	25 0 0	25 0 0	Ditto.
Champ logs...	129 c.ft.	27 8 0	0 2 0	
Katus „	178 „	22 8 0	0 3 5	Ditto.
Total of IIa ...	.....	12,082 8 0	.....	
Firewood and Charcoal.				
Tickets	31	155 0 0	5 0 0	Per ticket.
Ditto	4	60 0 0	15 0 0	Ditto.
Total of IIb ...	.....	215 0 0	.....	
Bamboos.				
Malingo bamboos	900	4 8 0	0 8 0	Per 100.
Permits for ditto	169	338 0 0	2 0 0	
Ditto	35	60 0 0	1 11 5	
Total of IIc ...	.....	402 8 0	.....	
Grazing and fodder grass.				
Head of cattle	6,004	3,002 0 0	0 8 0	Per head.
Ditto of goats	21	2 10 0	0 2 0	Ditto.
Tickets for bamboo leaves	841	420 0 9	0 8 0	Per ticket.
Total IId ...	.....	3,424 10 9	.....	
Other minor produce.				
Cane tickets	8	48 0 0	6 0 0	Ditto.
Total of IIe ...	.....	48 0 0	.....	
Total ...	.....	16,172 10 9	.....	

62. The trees sold as in the above list have chiefly been cut from those parts of the forest which are not yet worked departmentally. It is much to be regretted that press of other work has so far prevented the construction of the working plan adverted to in Dr. Schlich's report of last year, paragraph 63. Such a working plan will present considerable difficulties, but the Officiating Conservator hopes that another cold season will not pass by without a good beginning having been made. The increase in the amount of material sold was principally due to increased building works in Darjeeling and to the establishment of the railway offices and sanitarium at Dow Hill, Kurseong.

The increase in grazing dues is not, the Deputy Conservator states, due to an increase in the number of cattle, but to the improved establishment and the appointment of trustworthy rangers.

4.—Financial Results.

63. The actuals for the year arranged under the main heads are the following:—

	Revenue.	Charges.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
1. Departmental timber operations	49,720	38,481	11,239	.....
2. Other revenue	16,752	4,852	11,900	.....
3. Formation, protection, and improvement of forests	.....	9,533	.....	9,533
Total ...	66,472	52,866	13,606	9,533

The area of the division being 23,592 acres, it follows that it has yielded a cash surplus of Re. 0-9-3 per acre of forest, or Rs. 370 per square mile. This is less than last year; but it must be remembered that a large additional area has been taken up which has not been worked at all, and that, if the calculation had been made on the same area, the surplus per acre would have been higher than last year, and the result must be considered satisfactory.

B.—TEESTA DIVISION.

1.—Area and Boundaries.

64. (*a*)—*Area.*—By some mistake a portion of the area in the Rungít-Teesta range was omitted from last year's report. The blocks in that range should have been—

		Acres.
1.	Badamtam block (Rungít and Rungnoo)	569
2.	The Sumbong block	1,741
3.	„ Pashok „	1,011
4.	„ Mungwa „	995
5.	„ Reyang „	1,265
6.	„ Geeljong „	1,697
7.	„ Seem Jhora „	342
	Total ...	7,620

or twelve square miles. A correction has been made in annual form No. 45, and the difference of four square miles in the Kalimpung-Laha range, as explained in paragraph 66 of last year's report, made.

65. Beyond these alterations, no further change of area took place in the reserved forests, as, owing to the non-completion of the demarcation and settlement of the forests gazetted in notification of the 28th July 1878, under section 4 of the Indian Forest Act, it was not found possible yet to publish the final notification under section 19 constituting them reserves. The blocks preliminarily gazetted under that notification were—

1. The Teesta-Chel block
2. „ Jeet and Cheechu „
3. „ Rushett „
4. „ Nar „
5. „ Ne „
6. „ Mo „
7. „ Juldakha „
8. „ Suckain „

66. (*b*)—*Demarcation.*—The boundaries of the old reserves were all cleared of jungle at a cost of Rs. 1,102 or Rs. 13 per mile.

Of the regular reserves, the work was completed by the demarcation of the Nazzeok block, about 1,786 acres, with four miles of boundary line.

67. In the now proposed reserves the following blocks were completed:—

1. The Teesta-Chel block
2. „ Jeet and Cheechu „
3. „ Rushett (part) „
4. „ Nar (part) „
8. „ Suckain „

giving a length of 79½ miles of line costing Rs. 1,578·8, and containing 1,528 boundary marks, costing Rs. 2,185-3. This gives a cost per mile of boundary of Rs. 40 including marks.

The remaining blocks have chiefly natural boundaries, so that it will not take long to complete them.

2.—Protection and Improvement.

68. (*a*)—*Establishments.*—During the year a slight addition has been made to the establishments of the division which were on 31st March—

Rungít-Teesta range—
1 Forester.
Forest guards.
Chel range—
1 Forester.
Forest guards.
Daling range—
1 Forester.
Forest guards.

69. A further extension of establishment is now about to be made, so that, before the end of 1879-80, it will probably be—

						Rs.
2	Rangers	on	...	...	...	50
1	Forester	„	...	...	...	40
2	Foresters	„	...	...	...	25
19	Forest guards	„	...	...	...	8
2	„ „	„	...	...	...	7

70. (*b*)—*Breaches of Forest Rules.*—Only one case occurred during the year, it being for theft of bamboos and thatch-grass, a conviction being obtained.

71. (*c*)—*Bungalows.*—A head-quarters bungalow was commenced during the year, and since its close has been nearly completed at a cost of Rs. 3,000. Of this amount only Rs. 500 were spent in 1878-79, the delay in construction having occurred on account of the absence of the divisional officer on demarcation work during the whole working season. The small hut at Pashok was unfortunately destroyed by fire, but under the orders of Government a new house will be built by the Public Works Department on the same site.

72. (*d*)—*Fire protection.*—No special measures were taken during the year. Like all other divisions, this one has suffered terribly during the year: every effort will, however, be made in future for the proper protection of the forests and the prevention of fire. Special arrangements will be made for the Rungít and Teesta sâl forests and for the Teesta-Chel block in particular.

3.—Yield and Working.

73. One hundred and seven sâl trees were cut by the department in the Leesh forests during the year. They furnished 129 logs, giving 5,171 cubic feet. These logs are now being taken out to Julpigoree. 60 sâl sleepers were brought to the Pashok depôt, and the following timber was transferred from one depôt to another:—

		Pieces.	C. ft.
From Pashok to Kurseong division, sâl sleepers	...	204	272
Ditto to Julpigoree, sâl sleepers ...	...	7	9
From Sivoke to Julpigoree, sâl logs ...	...	9	215

Out of 260 sleepers launched from Pashok, 56 were lost in transit, while during an unusually heavy flood in the autumn of 1878, two sâl logs and 100 rejected sleepers were lost at Julpigoree.

74. The sales from depôts during the year were—

	Pieces.	C. ft.
Sâl logs	9	215
Sâl narrow gauge sleepers	195	260
Total ...	204	475

75. The following statement shows the produce removed by purchasers from the forests :—

Description.	Number of trees, &c.	Amount realized or due.	Rate.	Remarks.
Green trees.		Rs. A. P	Rs. A. P.	
Toon	20	500 0 0	25 0 0	
Sâl	31	620 0 0	20 0 0	
Semul	11	165 0 0	15 0 0	
Panisaj	2	30 0 0	15 0 0	
Saj	2	30 0 0	15 0 0	
Semul	1	10 0 0	10 0 0	
Chimsrung	1	10 0 0	10 0 0	
Lutter	1	10 0 0	10 0 0	
Lampattia	1	10 0 0	10 0 0	
Goguldhup	1	10 0 0	10 0 0	
Banghie	3	30 0 0	10 0 0	
Dead trees.				
Goguldhup	1	3 0 0	.....	
Total under II*a* ...	75	1,428 0 0	.....	
Firewood and Charcoal.				
Monthly cooly tickets	9	45 0 0	5 0 0	per ticket per month.
Total shewn under II*b* ...	...	45 0 0	.....	
Bamboos.				
Bamboos	14,670	146 11 6	1 0 0	per 100.
Total shewn under II*c* ...	...	146 11 6	.....	
Grazing and fodder grass.				
Tickets for bamboo leaves	36	18 0 0	0 8 0	each per month.
Buffaloes	79	14 13 0	0 3 0	"
Bullocks	277	34 10 0	0 2 0	"
Fodder grass	6	0 1 6	0 0 3	per load.
Total shewn under II*d* ...	.....	67 8 6	.....	
Other minor produce.				
Thatch-grass loads	1,500	15 0 0	1 0 0	per 100 loads.
Canes	164	41 0 0	0 4 0	per load.
Thatch-grass loads	300	4 11 0	0 0 3	
Total shewn under II*e* ...	.....	60 11 0	.....	
Grand Total under II*a, b, c, d, e* ...	.....	1,747 15 0	.....	

shewing an increase on the realizations of last year under the same heads.

4.—Financial Results.

76. Though better than last year as regards the revenue, there is still a deficit in this division. Now, however, that the work of demarcation is so near completion, the division should begin nearly, if not quite, to pay its expenses.

The actuals were—

		Rs.	Rs.
Receipt		...	3,086
Expenditure	A	4,915	
Ditto	B	8,831	13,746
Deficit		...	10,660

C.—KURSEONG DIVISION.

1.—Area and Boundaries.

77. (*a*)—*Area.*—The forests have been gazetted reserves under section 34 of the Indian Forest Act on 23rd January 1879. The areas gazetted include, besides those given in paragraph 79 of last year's report, those given in paragraph 80 also; the chief area in which is the hill tract between the Teesta river and the Sitong ridges covering 12,900 acres. This area was some years ago transferred from the Cinchona Department, but has not hitherto been brought on the return. By the same notification the Dhobijhora forest was also finally gazetted, giving an area of 499 acres, and the small addition of 30 acres made to the Rangamattia forest.

78. The jote lands known as Chandraie Bhita and Babooni Bhita, covering 87 acres, were added to the Champasari forest and jote Chowati Gram, 78·5 acres to the Dulka Jhar reserves. The location belonging to Mr. Southby in the Lama Gumba forest, 6 acres, has been deducted, as well as the locations of Messrs Martin and Haughton in the Manjha forest, 11 acres.

79. In the Khairbari forest an exchange has been made with Dr. Barker, the proprietor of the Lohagarhi Tea Estate, who receives an area of 12 acres as a location on the hill side, giving in exchange 17 acres of land on the bank of the Manjha river, which is useful as making more complete the boundary of the forest.

80. A similar exchange has been effected in the Chenga Manjha forest by arrangement with the new Terai Tea Association, so as to make the high road the boundary line. 17½ acres were received and 10 acres given up in this exchange.

81. A similar exchange has also been made in alteration of the boundary of the Balasun forest with the Manager of Tirihana Tea Estate, he giving an area of 7 acres and the carting road from the Dulka Jhar reserve in exchange for 16 acres, simplifying considerably the boundaries both of the reserve and the tea estate. The Manjha river block, 228 acres, not having been gazetted, is omitted from form 45.

82. The areas described in paragraph 81 of last year's report, as purchased from Mr. W. Lloyd, have not yet been finally gazetted, so they are not included in the return. As they were purchased free of all rights, and as there are no villages on them, the procedure of Chapter II of the Act in declaring them reserves will not take long. Of the blocks enumerated in paragraph 82 of the 1877-78 report, the purchase of the following have been completed:—

		Acres
1.	Kishabari	67·25
2.	Major Wardroper's	131
3.	Kanoo Choudry's bhita	68
4.	Jeetun Sing's jote	75
8.	Shilibhita	27
		368 25

Of the remaining jotes, Raghoo is a small tea garden which it may probably not be possible to acquire; but the purchase of Sham Lall's jotes Nos. 1 and 2 may possibly be arranged, and if, as well jotes Sanyasitha and Jhakooadura could be acquired, the boundary line of the Dulka Jhar would be very much improved, and a large compact block with natural boundaries obtained. These two latter jotes contain only about 100 acres. The addition to the Kurseong range of the Babookhola block has already been mentioned in paragraph 8.

83. Thus the total area at the end of the present year will be probably—

	Acres
Area, 1st April 1879	62,903
Add purchased lands	6,344
Babookhola and Mainring	1,840
	71,087
Deduct Teesta-Raing range	20,000
Balance, Kurseong division	51,087

84. (*b*)—*Demarcation.*—The lands purchased from Mr. Lloyd have all been demarcated during the year, with the exception of a small portion on the northern side of the Mechi block, where the boundary is to be altered to include some forest land the property of Government. The Mechi and Soorjbur blocks have also been completed.

85. The boundaries of the Munjooa, Dhobijhora, and Sibakhola blocks are in course of settlement by the Survey Department, who have put up permanent posts also at Babookhola. There therefore only remain now—

1. Munjooa (part)
2. Dhobijhora ,,
3. Sibakhola ,,
4. Merig.

Had it not been for boundary disputes which required the presence of the survey and settlement officers, the whole division would have been completed during the year as anticipated by Dr. Schlich.

2.—Protection and Improvement.

86. (*a*)—*Establishments.*—The following were entertained on the 31st March :—

1 Forest ranger.
3 Foresters.
17 Forest guards.

Owing to the increase in area and of forest work in the Kurseong division, we shall gradually entertain this year up to—

2 Forest rangers.
3 Foresters.
22 Forest guards.

87. (*b*)—*Breaches of Forest Rules.*—Three cases, involving seven persons, were instituted during the year ; in all convictions were obtained.

88. (*c*)—*Roads and Bridges.*—(1.) Existing roads have been cleared and the necessary repairs done. The temporary carting tracks at Choklong, as well as the traces in the Dulka Jhar, have been kept open.

(2.) The fire-path road in the Bamunpokri forest was repaired and continued for a distance of two miles up to the boundary line.

(3.) The bridle-path from Latpanchor to Sivoke has been repaired throughout, and a further distance of over one mile completed.

(4.) A new road has been constructed from the 8th mile of the Mahanadi Bereikh bridle-path along the Mana ridge to join the Mahalderam road above Kurseong, distant nearly five miles.

89. Altogether about 140 miles of forest roads have been made in this division with the best results in facilitating the inspection of the forests and export of produce.

90. (*d*)—*Buildings.*—The divisional head-quarters house at Kurseong was commenced during 1878-79 and is now nearly completed.

91. A ranger's house has been built at Chenga in the Balasun range, in a healthy situation on the hill top, at a cost of Rs. 500.

92. A similar house will be built above Shukna for the forest ranger of that range, and a new forester's house at Bamunpokri has been commenced. This has been necessitated by the fact of the growth of the plantation having completely shut in and rendered unhealthy the old house.

93. (*e*)—*Reproductive measures.*—No addition was made during the year to the Bamunpokri plantation, operations having been limited to the filling in of vacancies in block I. The nurseries have, however, been well stocked with seedlings of toon, sissu, chilanni, lampattia (*Duabanga sonneratioides*) and other species. The unplanted portion of block II, compartment 1, has

been prepared for planting, and it may be possible this year to assist the reproduction of the second and third compartments of block II by putting in seedlings where necessary. Sâl has seeded and germinated very abundantly this year, and natural reproduction may be largely expected.

94. The little India-rubber plantation continues to thrive, the plants growing very strongly and thickly. The plants put in baskets on trees have not yet shown much growth, but it is probable that, as soon as their roots, which are now descending, reach the ground, they will come on well. The experimental bamboo plantation is also doing well.

95. (*f*)—*Protection from fire.*—For many years the jungle fires have not been so bad as in the year 1878-79, and it is very unfortunate to have to report that nearly all the forests of the division have been burnt over. A small attempt was made to protect the Sivoke forests, but unsuccessfully, and a few fire-guards were entertained in the Dulka Jhar, but this can scarcely be called a proper attempt. Next year, however, and in future, now that demarcation is almost entirely completed, a vigorous attempt will be made to ensure the protection of as many of the forests of the division as possible, and this will, it is hoped, be done under arrangements with the civil officers and with tea planters whose estates border the forests.

96. The Bamunpokri plantation was, however, saved, though a small area at the extreme northern end of the forest got burnt. In fact, besides Bamunpokri, there was hardly an acre of jungle land in the Terai or lower hills, whether the property of Government or not, that was not burnt over during the year.

97. The expenditure in protecting Bamunpokri has been—

			Rs.		Rs.	A.	P.	
In 1876-77	..	...	1,213	or	0	14	2	per acre.
„ 1877-78	...	...	926	„	0	10	9	„
„ 1878-79	....	...	697	„	0	8	7	„

The expenditure has been reduced this year chiefly by arrangements made for the sale of a great portion of the grass in the Garidura block, instead of as formerly spending money to clear it, or parts of it, away.

98. *Creeper cutting.*—In the Bamunpokri forest 1,372 acres were cleared at a cost of Rs. 107-3 or Re. 0-1-3 per acre.

The whole of the Sukna-Teesta range, which had already been gone over in former years, was again cleared at a cost of Rs. 150 for 4,703 acres. Next year the Balasun range will be taken up.

3.—Yield and Working.

99. The chief timber work during the year has been the cutting of 10,000 sleepers for the Northern Bengal State Railway. Owing to work having proceeded more rapidly than was at first anticipated, double the estimated number was cut; no sleepers will consequently be supplied from this division in 1879-80.

The number of trees cut by Government agency was given in form 53—

Green sâl	...	...	...	...	807
Gambhari	...	...	...	...	20
Champ	...	...	...	...	2
Chilanni	...	...	...	...	4
Lampattia	...	..	...	...	6
Saj	...	...	...	...	2
Panisaj	...	...	...	...	2
Jhingni	...	..	...	...	4
Kuddum	...	...	...	...	1
Kumbi	...	...	...	...	2
			Total	...	850

The sâl trees were cut into logs and sleepers, the gambhari trees were logged and sent to Calcutta to the Indian Museum, and the remainder were used partly for foresters' houses, partly for lime-burning.

100. The timber brought to depôt is thus shown—

Description of timber.	Pieces		C. feet.	
Logs.—Sâl logs . . .	433		11,929	
Gambhari logs . .	20		518	
		453		12,447
Sleepers.—Sâl broad gauge sleepers	16		53	
" " " .	11,070		14,760	
" bridge " ...	989		1,978	
" bed plate " ...	8		40	
		12,083		16,831
Jhanjies		596		.....
Total ...		13,132		29,278
ADD—				
Transferred from Sivoke to Julpigoree depôt.				
Sâl logs	215		5,752	
Jhanjies	230		.....	
Gambhari logs	19		405	
		464		6,157
Grand Total ...		13,596		35,435

101. The following quantities of material were sold from Government depôts during the year :—

Description of timber	Pieces.		C feet.	
Logs.—Sâl	387		10,666	
Gambhari	18		392	
		405		11,058
Sleepers.—Sâl broad gauge sleepers	16		53	
" narrow gauge " ...	10,053		13,404	
" " " rejections ...	267		352	
" bridge sleepers ...	924		1,848	
" bed plate " ...	8		40	
Hurra narrow gauge sleepers	25		33	
		11,293		15,730
Others.—Sâl jhanjies	422		.....	
" planks	8		.....	
Sissu "	28		.....	
		458		.....
Total ...		12,156		26,788

102. The receipts at depôts and disposals compared show thus—

	Pieces	C feet
Receipts at depôts	13,596	35,435
Sales	12,156	26,788
Increase of stock in depôts ...	1,440	8,647

103. The financial results of departmental timber operations show as follow :—

	Rs.	A.	P
Average amount realized per cubic foot, omitting outstandings since paid ... . , ...	0	15	5
Average expenditure per cubic foot, including share of establishment, elephants, tools, &c.	0	7	10
Surplus per cubic foot ...	0	7	7

104. The following statement gives the quantities of forest produce removed from the forests by purchasers :—

Description of produce.	Number.	Amount.	Rate.	Remarks.
		Rs. A. P.	Rs. A. P.	
Green Timber.				
Sál trees	28	560 0 0	20 0 0	
Ditto	29	435 0 0	15 0 0	
Chilanni trees	27	405 0 0	15 0 0	
Ditto	4	40 0 0	10 0 0	
Saj	11	165 0 0	15 0 0	
Katus	6	90 0 0	15 0 0	
Panisaj	13	195 0 0	15 0 0	
Lampattia	54	810 0 0	15 0 0	
Ditto	5	50 0 0	10 0 0	
Simul	63	945 0 0	15 0 0	
Do.	13	130 0 0	10 0 0	
Sissu	7	70 0 0	10 0 0	
Goguldhup	15	150 0 0	10 0 0	
Hoongia	2	20 0 0	10 0 0	
Kuddum	8	80 0 0	10 0 0	
Hurra	1	10 0 0	10 0 0	
Gobria	12	120 0 0	10 0 0	
Kabashi	1	10 0 0	10 0 0	
Lepchaphal	2	20 0 0	10 0 0	
Dry timber	.....	.....	.....	
Sál khambas	2	14 0 0	7 0 0	
Ditto	11	55 0 0	5 0 0	
Ditto	33	99 0 0	3 0 0	
Ditto	2	3 0 0	1 8 0	
Ditto	31	31 0 0	1 0 0	
Ditto	51	25 8 0	0 8 0	
Kunker	1	0 8 0	0 8 0	
Rejected sál sleepers in forest ...	10	10 0 0	1 0 0	
Total of Timber ...	.....	4,473 0 0	.....	
Firewood, maunds	97,575	4,878 14 9	5 0 0	Per hundred maunds.
Ditto, ticket	1	5 0 0	5 0 0	„ monthly coolie ticket.
Ditto do.	1	15 0 0	15 0 0	„ „ cart do.
Ditto, cart loads	7	3 8 0	0 8 0	„ cart load.
Ditto, coolie „	30	1 14 0	0 1 0	„ coolie „
Ditto, kilns	2	10 0 0	5 0 0	„ each charcoal kiln.
Total ...	.....	4,914 4 9	.....	
Bamboos	66,142	661 7 0	1 0 0	„ 100.
Ditto, malingo	500	2 8 0	0 8 0	„ 100.
Total ...	.....	663 15 0	.....	
Grazing—				
Animals	603	301 8 0	0 8 0	Each in hill forests.
Buffaloes	6,320	1,185 0 0	0 3 0	„ Terai and plains.
Cows and horses	2,724	339 8 0	0 2 0	„ Terai and plains.
Goats	169	10 9 0	0 1 0	„ Terai and plains.
Fodder tickets	493	246 8 0	0 8 0	Each.
Total ...	.....	2,083 1 0	.....	
Other minor produce—				
Thatching-grass, bundles	19,685	307 9 3	0 0 3	Per bundle.
Permit for lime-burning	1	200 0 0	200 0 0	
Cane tickets	47	282 0 0	6 0 0	Each.
Do. coolie loads	442	110 12 0	0 4 0	
Total ...	.....	900 5 3	.....	
Total under II*a*, *b*, *c*, *d* and *e* ...	.....	13,084 10 0	.....	

4.—Financial Results.

105. The following figures exhibit the actuals of the year arranged according to main heads :—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
I.—Departmental timber operations	20,837	17,394	3,443	.....
II.—Other revenue	14,407	10,536	3,871	.....
III.—Formation, protection, and improvement of forests ...	.....	73,398	.....	73,398
Total ...	35,244	1,01,328	.....	66,084

The heavy deficit is due to two causes,—first, the refusal of the Northern Bengal State Railway to take over during the year the sleepers they had indented for, the value of which, viz. Rs. 17,734, was credited in April instead of in March; and secondly, to a sum of Rs. 63,492-5 having been paid for the purchase of land in the Terai. Omitting the latter item, and adding the former, we should have for the more correct figures of the year :—

	Rs.
Receipts	52,978
Charges	37,836
Surplus	15,142

D.—JULPIGOREE DIVISION.

1.—Area and Boundaries.

106. (*a*)—*Area.*—No increase has been made during the year under review. The forests have been gazetted under section 34 of the Act, and the Rehtee, Teeti, and an addition to the Dumchi reserve were gazetted preliminarily under section 4 in notification of 15th October 1878. The final notification under section 19 will soon issue. The area of the Khairbari forest has on demarcation been reduced to 1,775 acres, and that of Dulgaon to 1,375 acres. The areas of the new blocks are as follow :—

	Acres.	Square miles.
Rehtee	2,923	4·6
Teeti	7,795	12·2
Dumchi (addition)	1,142	1·8
		18·6

107. (*b*)—*Demarcation.*—This, with one exception, has been quite completed during the year under review, all remaining areas as given in paragraph 114 of last year's report, excepting the northern boundary of the Dainah forest, having been finished by Mr. Johnston.

108. (*c*)—*Boundary records.*—Those of the *Apalchand Tundu*, *Rehtee*, *Dumchi*, *Dulgaon*, *Khairbari*, and *Teeti* forests have been completed, and materials are ready for those of *Muraghat* and the lower portion of the *Dainah* reserve.

2.—Protection and Improvement.

109. (*a*)—*Establishments.*—The following were entertained during the year :—

4 Foresters,
12 Forest guards ;

but the establishment will now be raised to—

1 Forest ranger,
4 Foresters,
18 Forest guards,

the charges being arranged as described in paragraph 116 of Dr. Schlich's report of last year.

110. (*b*)—*Breaches of Forest Rules.*—Four cases, involving nine persons, were instituted during the year. Of these cases, two were for injury done by setting fire to the forests. One of these cases was dismissed ; the other, though pending at the close of the year, was on account of setting fire to the Dumchi reserve, and resulted in a sentence of three months' imprisonment to the delinquents.

111. (*c*)—*Roads and Bridges.*—Nothing has yet been done in this direction ; but now that demarcation is completed, it will be possible to arrange for roads to open up some of the reserves, and a commencement will be made in Muraghat.

112. (*d*)—*Buildings.*—The small bungalow at Ramshai Hât was destroyed by fire in spite of a large clearance round it and other precautions.

It will be necessary now to begin, as in the Kurseong division, to provide the forest rangers and foresters with proper houses, and an endeavour in this direction will be made during the year, commencing with Apalchand.

113. (*e*)—*Reproductive measures.*—The little area at Ramshai Hât, in spite of precautions in the way of clearing all inflammable matter, was again damaged by fire. The plantation was visited during the year by the Inspector-General of Forests and the Officiating Conservator. The Inspector-General gave it as his opinion that the climate was entirely unsuitable, and that, as a matter of course, no further attempt should be made to grow teak in the Dooars.

114. (*f*)—*Fire protection.*—An attempt was made to protect the Muraghat forest. Fire-lines were burnt round it in the early part of the season, and on the occasion of the Inspector-General's visit, parts of the Savannah portion of the forest were burnt over, the whole of the sâl tract remaining protected. Quite late in the season a portion of this was burnt from the north, so that only about 2,500 acres were eventually successfully protected, the lighters of latter fire were caught and sent up for trial. The same system of burning the Savannah tracts was attempted under the advice of the Inspector-General in the Apalchand and Tundu Forests, and resulted in the protection of about quarter of the former and two-thirds of the latter. Next year every possible endeavour will be made for a systematic plan of protective works, and it is to be hoped that we may, now that we are not tied down to the demarcation work, be successful in all the reserves.

3.—Yield and Working.

115. Very little was done during the year by departmental agency. As explained in last year's report, paragraph 121, it was decided not to work the reserves except for dry and fallen trees. Trees were felled, however, for the Road Cess Department, as recorded in section III, in the Apalchand and Muraghat open forests, and sold at cost price. The trees felled by departmental agency were—

In Apalchand open forest sâl	50
„ Tundu reserve	40
„ Muraghât open forest	320
Total ...	410

116. The following quantities of timber were taken to depôt during the year:—

Description of timber.	Pieces.		C. feet.	
Logs.—Sâl	47		...	
„	162		1,021	
Toon	2		145	
Sissu	1		9	
		212		1,175
Sleepers.—Sâl broad gauge sleepers ...	158		526	
„ narrow gauge „ ...	80		107	
		238		633
Others.—Sâl jhanjies	105		...	
„ slabs	334		...	
Toon planks	172		...	
		611		
Total ...		1,061	1,808	

117. The following quantities of timber have been sold from depôts:—

Description of timber.	Pieces.		C. feet.	
Logs.—Sâl	136		2,847	
Toon	1		51	
Jhow	1		37	
Sissu	1		9	
		139		2,944
Sleepers.—Sâl broad gauge	7		157	
„ narrow gauge	583		777	
		630		934
Other scantlings		936		...
Total ...		1,705		3,878

118. The material removed from the forests by purchasers is thus given—

Description of Produce.	Number.	Amount realised.	Rate.	Remarks.
		Rs. A. P.	Rs. A. P.	
Green sál	6	90 0 0	15 0 0	
" semul	1	5 0 0	5 0 0	
Kala khambas	35	210 0 0	6 0 0	
Ditto	523	1,569 0 0	3 0 0	
Ditto	1,005	1,507 8 0	1 8 0	
Ditto	544	272 0 0	0 8 0	
Dead and dry sissu	6	18 0 0	3 0 0	
Ditto	30	45 0 0	1 8 0	
Ditto	6	3 0 0	0 8 0	
Difference between old and new rates of kala khambas	.....	62 8 0	.....	
Total under II*a* ...	.....	3,782 0 0	.....	
Bamboos	200	2 0 0	1 0 0	Per 100.
Total under II*c* ...	.....	2 0 0	...	
Grazing.				
Heads of cattle	.....	496 14 0	.....	
Total under II*d* ...	.....	496 14 0	.....	
Other Minor Produce.				
Cane tickets	11	66 0 0	6 0 0	Each.
Total under II*e* ..	.....	66 0 0	.....	
Total II *a*, *c*, *d*, and *e* ...	.....	4,346 0 0	.....	

4.—Financial Results.

119. The actuals stand as follow:—

	Receipts.	Charges	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
1. Departmental timber operations	3,617	5,167	.....	1,550
2. Other revenue	4,669	5,907	... ..	1,238
3. Formation, protection, and improvement of forests	.....	3,829	.....	3,829
Total ...	8,286	14,903	.....	6,617

E.—BUXA DIVISION.

1.—Area and Boundaries.

120. (*a*)—*Area*—No alteration was made in the areas of the reserves during the year.

121. (*b*)—*Boundaries.*—These were all kept clear. The Officiating Conservator on his inspection found them in very good order, the lines well cut, and the posts properly numbered.

122. (*c*)—*Boundary records.*—These have been completed in the whole division, except such lines as form the boundary of Bhootan territory.

2.—Protection and Improvement.

123. (*a*)—*Establishment.*—No alteration took place during the year, but small increase will now be made to the establishment, and the following employed:—

Forest rangers	2
Foresters	6
Forest guards	19

This will give a forester for the Borojhar range, where he was very much wanted.

124. (*b*)—*Breaches of Forest Rules.*—Four cases were instituted during the year involving 46 persons, in all of which convictions were obtained. One case

was for the theft of a sâl post from the Kawnia depôt; the other three cases were for setting fire to the Raidak and Borojhar forests, and the conviction of the offenders will have a very good effect, it is anticipated, in the prevention of fire in future years.

125. (*c*)—*Roads and Bridges.*—During the year the 36·1 miles of roads made in former years were cleared of jungle at a cost of Rs. 14-8 per mile, the total expenditure being Rs. 527-8. 80¼ miles of boundary line were also cleared at a cost of Rs. 1,088, or Rs. 13-8 per mile. Addition was made to the east and west traces of 9½ miles at the 18th, 20th, and 21st mile, costing Rs. 298, or Rs. 31-6 per mile. The distance of roads cleared is therefore now as follows:—

	Done formerly.	In 1878-79.	Total.
18th	5	5	10
19th	.....	.....	.....
20th	.....	2	2
21st	.....	2·5	2·5
22nd	5	.....	5
23rd	4	.....	4
24th	3·6	.....	3·6
25th	3·8	.....	3·8
26th	3·7	.....	3·7
27th	3·4	.....	3·4
28th	2·6	.....	2·6
29th	2·6	.....	2·6
30th	2·2	.....	2·2
Total ...	35·9	9·5	45·4

126. (*d*)—*Buildings.*—A godown which was much required was built at Rajabhatkowa for the safe custody of all the Government stores and elephants' food at that place. Out-house for the inspection bungalow and huts for the mahouts were also built at Rajabhatkowa and Aliporo, as well as huts for the Huldeebaree and Gachidanga depôt foresters. The old hut at Borojhar Satali was burnt in a jungle fire in February last; it was at the time quite uninhabitable.

127. (*e*)—*Reproductive measures.*—The sâl belt along the south boundary of the Buxa reserve was extended and enclosed by an area of 13 acres between the Deema and Gurm rivers, and two nurseries of one acre each was in order to fill up vacancies. The strip in which seedlings taken from the forests was put out was inspected by the Officiating Conservator during the year, and was found to be growing well, the parts where sâl seed had been sown was not so good. This is undoubtedly due to some extent to the low and damp ground in many parts of the line; and in future other trees, especially evergreens, will be tried as well as sâl. On the recommendation of the Inspector-General it is proposed not to plant in small strips along the boundary, but to take up blocks gradually between the boundary line and the 18th mile road and plant up.

128. (*f*)—*Creeper cutting.*—During the year under review, compartments 12 to 16, covering an area of 6,209 acres, were cleared of creepers at a cost of Rs. 189-5-6, or less than six pies per acre. The total area now cleared is 15,355 acres.

129. (*g*)—*Protection from fire.*—The following account of the fires in the Buxa division by Mr. Richardson, the divisional officer, will explain what difficulties have been met with:—

"During the past year fire protection was attempted in the Buxa range and the Bholka reserve in Huldeebaree, and special measures were taken for that purpose. These consisted in burning the grass along the outside edge of the outer boundary and stationing fire-guards along frequented roads and on the boundary itself. The extra precaution was taken of clearing away and burning the grass and brushwood from the Rajabhatkowa clearing and round the sawyers' encampments. Up to the middle of March no fires of any consequence occurred. The first large fire in the specially protected tract occurred in the Bholka reserve, and was, I feel sure, the work of some individuals who owed a spite to the forest guard and fire-watchers; but although every effort was made to

bring home the crime to the parties suspected, we were unable to obtain sufficient proof to warrant our sending them up for trial.. This fire originated inside the Bholka reserve on the east bank of the Kalcooli river near the village of Dulduli, and with the high wind swept across to the Bholka river, which runs through the centre of the forest, and which checked it to a certain extent from going straight across to the Sunkos. The fire spread a short distance southwards and then northwards, crossing the Bholka river near Blosing tehsildar, and extended along the Sunkos river to the north boundary. During the whole time the fire lasted the wind continued very high, and in spite of the foresters' exertions an area of about 11 square miles was burnt.

"The next fire occurred in the Buxa range, of which 58 square miles extending from the north boundary to the 22nd mile road were burnt. This fire also originated within the boundary of the reserve on the hills towards the east of Buxa, and owing to the impossibility of getting coolies even with the assistance of the police, I endeavoured to confine the fire to the hills, and if possible to prevent it from spreading down into the plains forests. But in spite of every exertion the fire spread as far as the 29th mile road. Here it was checked, and I was in hopes that it had been finally extinguished. Coolies were stationed along the 29th mile road in order to guard against any fire from smouldering pieces of wood setting alight the grass on the opposite side of the line. The ranger and myself both went along the line to see that all ashes and embers had been properly swept away to a safe distance. I also had a number of smouldering logs and decayed pieces of wood removed to a safe distance. In the course of the night, however, a piece of burning wood, which had not been perceived, fell from a tree on the east bank of the Bola river into the dry grass which at once ignited, and in a short time the fire before the strong wind extended eastwards to the Jangli river, when the wind changed to the east and drove the fire eastwards. With the object of saving the central or Rajabhatkowa plot a counter-fire was lit along the east bank of the Bola river; but owing to the high wind the fire crossed into compartment 14 near the 24th mile road; and although counter-fires were successively lit along the 24th, 25th, 26th, 27th, and 28th mile roads, the conflagration steadily advanced and burnt right up to Santrabari, where it at last burnt itself out. With great difficulty the fire was finally checked at the 22nd mile road, and the whole of the Poro block, half the Panbari, and a considerable portion of the Rajabhatkowa block have been saved.

"The blocks in which no special protective works were started have also suffered from fires, the first to burn was the Borojhar range. The fire originated near the Toorsa river, and was caused most probably by cattle graziers who had several large herds of buffaloes encamped on the west of the Toorsa river near Madari Hât. The second fire in the Borojhar range originated at the south-east corner between the Bunia and Buri Bursa rivers, and burnt the remainder of the Borojhar range. In this instance we were fortunate enough in apprehending and convicting the men who had set the fire. In the Huldeebaree range the Dhumpora and Raidak forests were also burnt, the latter by some shikareos who deliberality fired the grass in order to drive the game into some nets which they had spread. In this case 39 men were arrested and sent up for trial, and all convicted and punished by the sub-divisional officer of Buxa; five were sentenced to three months and a fine of Rs. 3, and 34 to 7 days' imprisonment and Rs. 3 fine."

130. The result of these prosecutions, and the help afforded by the Buxa sub-divisional officer, will be of the greatest use to us in future, and will, it is hoped, help to render the protective works, which in 1880 will be on a much larger scale, more thoroughly successful. In such a dry season as that reported on, however, it is greatly a matter for congratulation that even more damage was not done.

3.—Yield and Working.

131. The working plan of the Buxa reserve prescribed fellings for 1878-79 in compartments 13, 14, 15, 16; these were consequently made, and in addition available timber from compartment 12, which had not been cut in 1877-78, was also cut. On the Officiating Conservator's visit in February, he stopped the fellings in compartments 15 and 16, as the stock of old timber

lying in the forest, and not yet dragged out, was getting rather large. The following table exhibits the trees cut up to 31st March 1879:—

Block and compartment.	Total No. up to 31st March 1879.			Felled during 1878-79.			Total to end of March 1879.		
	Sâl.	Sissu.	Total.	Sâl.	Sissu.	Total.	Sâl.	Sissu.	Total.
Block III.									
Compartment 1	630	9	639	.....	.....	.....	630	9	639
Ditto 2	.....	.....	303	.....	.....	.....	.....	.....	303
Ditto 3	.....	.....	977	.....	.....	.....	.....	.....	977
Ditto 4	.....	.....	278	.....	.....	.....	.....	.....	278
Ditto 5	.....	.....	255	.....	.....	.....	.....	.....	255
Ditto 6	.....	.....	638	.....	.....	.....	.....	.....	638
Ditto 7	.....	.....	736	.....	.....	.....	.....	.....	736
Ditto 8	.....	.....	1,749	.....	.....	.....	.....	.....	1,749
Ditto 9	.....	.....	415	.....	.....	.....	.....	.....	415
Ditto 10	.....	.....	1,903	.....	.....	.....	.....	.....	1,903
Ditto 11	.....	.....	679	.....	.....	.....	.....	.....	679
Ditto 12	.....	.....	.....	1,030	.....	.....	1,030	.....	.....
Ditto 13	.....	.....	.....	341	.....	.....	341	.....	.....
Ditto 14	.....	.....	.....	1,065	.....	.....	1,065	.....	.....
Ditto 15	.....	.....	.....	54	.....	.....	54	.....	.....
Ditto 16	.....	.....	.....	97	.....	.....	97	.....	.....
Buxa Hills	.....	.....	.....	16	.....	.....	16	.....	.....
Total ...	630	9	8,572	2,603	.....	.....	3,233	9	8,572

The 2,603 trees were cut up into 2,877 logs.

132. The chief timber operations of the year have been the supply of sleepers to the Northern Bengal State Railway at Kawnia, and of timber in log to the Teesta-Dhubri road at Gachidanga.

133. The following quantities of timber reached the depôt during the year:—

Description of timber.	Pieces.	C. feet.	Total. Pieces.	Total. C. feet.
Logs—Sâl	437	16,174	437	16,174
Sleepers—Sâl, narrow gauge ...	18,876	25,168		
" " rejected	595	791		
Miscellaneous, broad gauge	146	500	19,617	26,459
Other Scantlings—Slabs, &c. ...	4,419	130	4,419	130
Posts	395	705	395	705
Total ...	.....	.....	24,868	43,468
ADD—				
Transferred from Alipore to Gachidanga Depôt.				
Logs—Sâl	622	17,234		
Posts—Sâl	267	531		
Slabs—Sâl	1	.....	890	17,765
Transferred from Alipore to Kawnia.				
Posts—Sâl	63	.....		
Slabs—Sâl	1	.....		
Sleepers—Sâl, narrow gauge ...	12,652	16,869	12,716	16,869
Transferred from Gachidanga to Kawnia.				
Logs—Sâl	110	4,149		
Posts—Sâl	7	.....	117	4,149
Total Transfers ...	.....	.....	13,723	38,783
GRAND TOTAL ...	.....	.....	38,591	82,251

134. The timber sold from depôts was—

Description of timber.	Pieces.	C. feet.	Total Pieces	Total C. feet.
Logs—Sâl	1,306	36,359		
Sissu	7	147		
Khair	2	25		
Miscellaneous	11	156		
			1,326	36,687
Sleepers—Narrow gauge ...	.....	.....	18,449	24,577
Other Scantlings—Slabs, &c. ...	....	.....	1,352	.....
Posts, &c. ...	.....	.....	129	310
Total ...	.....	.....	21,256	61,574
ADD—				
Logs cut into Sleepers in Depôt.				
Sâl	673	17,214		
Sissu	2	46		
Miscellaneous	2	33		
			677	17,293
Lost and used by depôt ...	.....	.....	253	46
GRAND TOTAL ...	.....	.....	22,286	78,913

135. We kept at depôt and the disposals compare thus—

	Pieces.	C feet.
Kept at depôt	24,868	43,468
Disposals	22,286	78,913
In favour of year ...	2,582	.....
Against the year ...	.....	35,445

The increase in number of pieces is chiefly due to small pieces, slabs, brought to depôt, and the decrease in cubic feet to the sale of logs and to the loss of timber in cutting up sleepers in depôt.

136. Financially the timber operations show the following results:—

	Rs.	A.	P.
Average amount realized per cubic foot	1	7	8
Average expenditure per cubic foot, including share of establishments, elephants, tools, &c.	0	7	0
Surplus per cubic foot	1	0	8

but this surplus is due to some extent to the purchase money on 8,449 sleepers made over in 1877-78 having been received during the year.

137. The sleepers were cut up partly in the forest, partly at the side of the Buxa-Alipore road, and partly from second-class logs in the Alipore depôt. Those from the forests and the side of the road were carted to Alipore, and thence all were floated down the Kalajani and Brahmaputra rivers, and up the Teesta to Kawnia depôt.

138. The logs were floated from Alipore to Gachidanga, and there made over to the Public Works Department. Considerable difficulty is always felt in this division in obtaining sawyers for cutting up sleepers, and the difficulty is much enhanced by the almost entire want of water during the dry season in the encampments situated to the north of Rajabhatkowa. On this the Assistant Conservator, Mr. Richardson, says—

"The want of water in the Buxa range north of the 24th mile road was greatly felt, and the sleeper work between 24th and 25th mile roads was only kept up, and the sawyers induced to live so far up by being supplied with water from Rajabhatkowa, which was carried by a cart in casks and earthen gumlas to the different encampments. A small kutcha well was also dug near the 25th mile road which was useful for a short time, but eventually dried up, and had to be abandoned after a depth of over 30 feet was reached."

139. In addition to making an experiment on the durability of other woods than sâl as sleepers, trees of the kinds mentioned below were felled in 1876, and cut up into broad gauge sleepers in 1878. They have since the end of the year been despatched to Goalundo to the Agents of the East Indian and Eastern Bengal Railways. The sleepers were of the following kinds—

Sissu (*Dalbergia sissu*)	11
Khair (*Acacia catechu*)	18
Parari (*Sterecopermum chelonoides*)	10
Akohi (*Dillenia pentagyna*)	10
Chalta (*Dillenia Indica*)	4
Mallagiri (*Cinnamomum glanduliferum*)	6
Bœri (*Cordia myxa*)	10
Mahua (*Engelhardtia spicata*)	10
Sidu (*Lagerstrœmia paroiflora*)	11
Kumbi (*Careya arborea*)	10
Siris (*Albizzia procera*)	11
Kuddum (*Anthocephalus cadamba*)	10
Champ (*Michelia champaca*)	11
Katus (*Castanopsis Indica*)	10
Chilanni (*Schima Wallichii*)	12

140. Our first work during the current year will be to clear out of the forest as much of the old stock of sâl and sissu logs as possible, and to continue to bring them out before cutting fresh timber. There now appears some prospect of a market being found for the sissu logs, which hitherto have been difficult to dispose of.

141. The subjoined list exhibits the produce removed from the forests by purchasers during the year:—

Description.	Number.	Amount.	Rate.	Remarks.
		Rs. A. P.	Rs. A. P.	
Green sâl trees	1	20 0 0	20 0 0	Each.
Semul trees	3	30 0 0	10 0 0	"
Ditto	1	6 0 0	6 0 0	"
Kala khambas	1	10 0 0	10 0 0	"
Ditto	9	63 0 0	7 0 0	"
Ditto	160	960 0 0	6 0 0	"
Ditto	548	1,644 0 0	3 0 0	"
Ditto	302	453 0 0	1 8 0	"
Ditto	127	127 0 0	1 0 0	"
Ditto	321	160 8 0	0 8 0	"
Ditto	79	237 0 0	3 0 0	"
To Department Public Works	28	28 0 0	1 0 0	"
Total IIa ...	.....	3,739 8 0	.....	
Firewood—				
Maunds	600	18 0 0	3 0 0	Per 100 maunds.
Carts	39	12 3 0	0 5 0	Per cart.
Do.	98	49 0 0	0 8 0	"
Loads	30	2 13 0	0 1 6	Per load.
Do.	2	0 5 0	0 2 6	"
Total IIb ...	.....	82 5 0	.....	
Bamboos	1,857	18 9 0	1 0 0	Per 100.
Total IIc ...	.....	18 0 0	.....	
Grazing—				
Buffaloes	1,340	155 0 0	0 2 0	
Bullocks and cows	43	4 0 6	0 1 6	
Ditto ditto	404	25 4 0	0 1 0	
Ditto ditto	6	0 3 0	0 0 6	
Elephants	.....	58 4 0	.....	
Total IId ...	.....	242 11 6		
Other minor produce—				
Fish license	1	2 0 0	2 0 0	Each.
Lime, per maund	60	15 0 0	0 4 0	Per maund.
Grass, bundles	.....	16 14 0	.....	
Total IIe ...	.....	33 14 0	.....	

4.—Financial Results.

142. These stand as follow:—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
1. Departmental timber operation	91,298	35,891	55,407	.....
2. Other revenue	4,416	6,873	.. ...	2,457
3. Formation, protection, and improvement of forests	.....	8,625	.....	8,625
Total ...	95,714	51,389	44,325	.....

The surplus is due partly to the value of 8,449 sleepers belonging to 1877-78 having been paid in during the year, but chiefly to increased sale of timber owing to demand chiefly for public works purposes.

F.—PALAMOW DIVISION.

1.—Area and Boundaries.

143. (*a*)—*Area.*—No change has taken place, in the area of this division during the year. The reserves in the Lohardugga and Shahabad districts have, however, been gazetted reserves under section 34 of the Indian Forest Act.

144. (*b*)—*Demarcation.*—The demarcation of the Shahabad reserves has not been yet completed owing to disputes, and no settlement officer having as yet been sent to Rhotas as ordered by Government. During the year the question of the taking up of the lands in Rohal belonging to the Maharajah of Deo has been decided by the award in the Court of the Judge of Arrah of a sum of Rs. 14,000 to the Maharajah. The sum awarded is so out of all proportion to the advantage to be gained, that arrangements will have to be made either to appeal against the order, or come to other terms with the Maharajah. The whole question is now before the Government of Bengal, so no more need be said upon it.

2.—Protection and Improvement.

145. (*a*)—*Establishments.*—No change has taken place since last year; some slight alterations are, however, to be made in the establishment, so as to bring it nearer to that mentioned by Dr. Schlich in paragraph 167 of last year's report as necessary for the division.

146. (*b*)—*Breaches of Forest Rules.*—Two prosecutions were instituted, both of which resulted in conviction.

3.—Yield and Working.

147. The following table shows the material removed from the forests by private purchasers :—

Description.	Number.	Amount realized	Rate	Remarks.
		Rs A P.	Rs A. P.	
II(*a*)—Poles	200	12 8 0	1 0 0	Each.
II(*b*)— "	56	0 14 0	0 0 3	"
II(*c*)—Bamboos	1,725	6 4 10	0 5 10	Per 100.
Grazing and fodder grass	...	241 8 9	.. ..	
Thatching-grass	135	0 11 3	0 0 1	Per bundle.
Mowah flowers	....	195 11 0	. ...	
Mango fruits	...	8 0 0	.. ..	
Hurra " maunds	7	4 10 8	0 10 8	Per maund
Sabai grass	140	4 6 0	0 0 6	Per bundle.
Lac	.....	42 13 7	..	
Total II*a*, II*b*, II*c*, II*d* and II*e* ...	.....	517 8 1	.. ..	

4.—Financial Results.

148. These stand as follow :—

		Rs.	Rs.
Receipts ...	...	....	757 3 3
Charges ...	...	A. 733 13 0	.....
...	...	B. 14,476 1 2	15,209 14 4
Deficit ...		.....	14,452 11 1

G.—SUNDERBUNS.

1.—Area and Boundaries.

149. No changes have taken place, the areas of reserved forests remaining as last year.

2.—Protection and Improvement.

150. (*a*)—*Establishment.*—The following establishment was entertained on the 31st March 1879 :—

1 Forest ranger.
24 Foresters.
Forest guards.

As the waste lands in the Sunderbuns outside the reserves in the districts of Jessore and 24-Pergunnahs have now been gazetted "protected forests," the following establishment will now be entertained for the reserved and protected forests:—

5 Forest rangers,
30 Foresters,
18 Forest guards,

this establishment being divided in ranges according to the distribution given in paragraph 174 of last year's report.

151. (*b*)—*Breach of Forest Rules.*—Forty-nine cases were instituted during the year involving 161 persons; of these, however, 23 were cases pending from last year. We obtained 19 convictions involving 81 persons; 24 cases resulted in acquittals; four cases are pending; and two fell through, through non-appearance of the parties concerned.

152. (*c*)—*Buildings and Boats.*—Two station-houses have been erected during the year at the Khulna and Koyra stations, making altogether seven houses. Four more houses will have to be built to complete those for the reserved forest.

153. The construction of departmental boats has been continued during the year, 12 more having been built. The 23 boats built formerly have had their roofs and bottoms covered with zinc.

154. (*d*)—*Reproductive measures.*—In the small baobab plantation at Ghooskhali no improvement has to be recorded, only 164 plants now remain, averaging a height of two feet three inches each, the average growth in the last year having been seven inches. A few plants in the compound of the bungalow at Khulna are more healthy. This condition the divisional officer attributes to their being planted on high ground with good drainage, and to their not being subject to periodical floods like those at Ghooskhali. Though the same age as those in the plantation, they average four feet four inches in height.

No other attempts at artificial reproduction were made.

155. (*e*)—*Protection from fire.*—No special measures were necessary.

3.—Yield and Working.

156. No timber works were undertaken during the year. Thirty-six sundri logs of 365 cubic feet were confiscated and brought to the Khulna depôt. Of these, one was used for departmental purposes and 35 were sold, realizing Rs. 121, or 5 annas 6 pies per cubic foot.

The system of working has not altered during the year.

157. The quantities of material removed during the year are shown below:—

Description of Timber.	Boats	Rafts	Logs.	Bundles.	Pieces.	Maunds.	Amount realized and due.	Rate.	Remarks.
							Rs A. P.	Rs. A. P.	
Sundri timber	8,675 2/16	345½	2,873	.....	....	6,55,037	40,930 13 0	6 4 0	Per 100 mds.
Keora "	465½	8	57	.. ..	...	1,04,783	1,636 7 3	1 9 0	Ditto.
Sundri posts	66	2	121	.....	.. ...	23,285	363 13 3	1 9 0	Ditto.
Goran "	1,232½	.....	... ..	.....	..... .	5,63,977	8,812 2 3	1 9 0	Ditto.
Pussur "	370	1	36	.. .	... .	91,257	1,425 14 3	1 9 0	Ditto.
Kirpa "	155	.....	.. ...	...	.....	15,525	242 9 3	1 9 0	Ditto.
Amoor " ..	94		5	.....	..... .	14,079	219 15 9	1 9 0	Ditto.
Genwa "	1	. .	. . .	.....	... ..	500	7 13 0	1 9 0	Ditto.
Dhundal "	8	.	..	.....	..	3,156	49 5 0	1 9 0	Ditto.
Sundri masts	11	72	22	.....	.	20,340½	1,271 4 3	6 4 0	Ditto
Ban timber	2	.....		. ..	... ..	49	0 12 3	1 9 0	Ditto.
Total IIa ...	6,080 3/16	437½	3,114	.....	. . .	14,91,938½	54,969 13 0	. .	
Firewood	11,417½	35	.	.....	.	52,24,174	81,627 11 6	1 9 0	Ditto.
Total IIb ...	11,417½	35	.. ..	. ...	... ..	52,24,174	81,627 11 6	. .	
Golpatta	7,245½	....	.....	.....	.....	20,88,610	32,634 8 6	1 9 0	Ditto.
Nuli	204	4	... .	.. ...	.....	39,934	623 15 6	1 9 0	Ditto.
Shells	155½	.....	.....	.....	... .	65,452	1,022 11 0	1 9 0	Ditto.
Cane	226	.....	.....	.....	.....	8,299	129 10 9	1 9 0	Ditto.
Hantal	2	.....	.....	.....	.....	825	12 14 3	1 9 0	Ditto.
Wax and honey	122	....	..	.....	.....		968 0 0	1 0 0	Per man
Fruits	1	.. ..		.....	. .	50	0 12 6	1 9 0	Per 100 mds.
Total IIc ...	7,956	4	. ..		. . .	22,03,170	35,392 8 6		
Grand Total under IIa, b, & c.	25,454½	476½	3,114	.....	. . . .	89,19,282½	1,71,090 1 6		

4.—Financial Results.

158. These stand thus—

					Rs.	A.	P.
Receipts	...	...	...	...	1,72,546	5	2
		Rs.	A.	P.			
Charges	...	A. 16,841	13	8			
		B. 36,232	14	6			
					53,074	12	2
Surplus	...	...	...	...	1,19,471	9	0

which represents a slight falling off in revenue since last year, and a considerable decrease in surplus owing to increased expenditure. The divisional officer considers the falling off in revenue to be due to the fact that an abundant paddy harvest did not compel the agricultural class to revert to wood-cutting, as it did the previous year, and that a large area of zemindaree land has during the year been thrown open to wood-cutters at rates considerably less than those charged by the department. He also considers that the light sentences which have been awarded for breach of Forest Rules, especially by the Deputy Magistrate of Bagirhat, who in some cases refused to convict persons found in possession of produce, but without permits, unless the forest subordinates had actually seen the trees being felled or the produce in process of removal, have to some extent diminished revenue by encouraging the illegal removal of produce.

159. The area of the Sunderbuns reserves being 1,581 square miles, the surplus revenue per square mile amounts to Rs. 75-8, or a falling off of Rs. 13-8 per square mile.

H.—CHITTAGONG DIVISION.

1.—Area and Boundaries.

160. (*a*)—*Area.*—No change in the area as given in form 45 occurred during the year.

But in a notification dated 10th May 1878, the following areas were gazetted under section 4 of the Act:—

1. Kasalong reserve (to include the present Maiani reserve)
2. Sitapahar Reserve (making up a large area and altering the boundaries);
3. Matamori reserve (to include the present Matamori reserve);

and in notification of the 23rd April 1879—

4. Rinkheong reserve;
5. Sungoo ,,

It is to be hoped that the forest settlement officer will be able to complete his enquiries early, so as to enable the whole of the five reserves to be permanently gazetted under section 19 of the Act before next cold season commences.

161. (*b*)—*Demarcation.*—In consequence of the alterations of boundaries this has to be done over again. That of the northern boundary of the Matamori has been completed.

The demarcation of the Kasalong southern boundary, after proceeding for some distance, had to be stopped, as labour was not procurable.

The demarcation of the Sitapahar reserve is in progress.

162. (*c*)—*Boundary Records.*—That of the Matamori reserve is completed.

2.—Protection and Improvement.

163 (*a*)—*Establishments.*—Three foresters and 11 forest guards have been employed. We shall now have to reorganize completely the establishment of the reserves, and the following establishment has been sanctioned :—

Kasalong range	1 Forest ranger, 1 Forester, 5 Forest guards,
Rinkheong „	1 Forester, 4 Forest guards,
Sitapahar „	1 Forester, 4 Forest guards,
Sungoo „	1 Forester, 3 Forest guards,
Matamori „	1 Forest ranger, 4 Forest guards,

available for demarcation or other works.

164. (*b*)—*Breaches of Forest Rules.*—No cases were instituted during the year.

165. (*c*)—*Roads and Bridges.*—The alterations in the area and the consequent paramount importance of demarcation and inspection work obliged us to stop for a time the continuance of the roads in the Maiani reserve. They will, however, be again taken up on the completion of the demarcation work. A road from Kaptai, the head-quarters of the Sitapahar reserve, through the Kaptai, Rinkheong, and Sitapahar blocks, has been commenced ; it will join the Waga Serra Tea Estate roads and connect Kaptai with Chandragona and Chittagong. At present the only means of communication in the reserves is by boat on the rivers, or on foot up the narrow streams or "serras" often very tortuous and difficult to follow, the whole of the country between these streams being practically sealed to inspection. The road now commenced, and the boundary road of the Kaptai block across the isthmus, will be a commencement of road work in the Sitapahar reserve, the forest nearest to Chittagong, and important from its situation and the plantations within it, and from the numerous tea gardens which are springing up all round.

166. (*d*)—*Buildings.*—None were constructed during the year. A head-quarters bungalow has, however, been sanctioned for the divisional officer at Rangamattia, and will be built this year.

167. (*e*)—*Reproductive measures.*—An addition of 80 acres on low hills in the Kaptai block were added to the reserve. The kinds planted were teak, toon, and gambhar, a little sissu, khair, chaplis, jarúl, and gurjun being put out in suitable localities.

The Officiating Conservator visited the plantation in March last, and made countings in lines over an area of 1½ acres. He found that the vacancies were 39 per cent. of the plants found, the comparative percentage was as follows :—

	Per cent.
Teak	42
Toon	25
Gambhar	24
Other kind	9
Total ...	100

168. The vacancies were, however, usually local; many parts were well stocked and probably scarcely contained 20 per cent. of vacancies, while others had very few plants. The causes of this were—

1*st.*—A difficult season, intervals of hot sunny weather intervening in the rains and killing off lately transplanted plants of delicate habit, like toon.

2*nd.*—The ravages of deer. During the Officiating Conservator's visit, on several occasions he found deer in the plantation, and the damage they do to young toon is very great.

The vacancies will be filled up the first thing in the current year, and with a good rainy season there is every prospect of the plantation now succeeding well.

169. The areas planted up to date are—

	Sitapahar Block.	Hoolingamara Block.	Kaptai Block.
1872	8	...	...
1873	47	3	...
1874	38	45	...
1875	...	30	...
1876	...	...	...
1877	...	14	...
1878	...	...	80
Total ...	93	92	80
Grand Total ...			265

170. This year a continuation will be made in the Kaptai block, and planting operations will be confined to that block for the present.

171. A map of the Kaptai block, giving also the Hoolingamara plantation, has been prepared by Mr. Green, giving the planted areas in detail. This map will be most useful.

172. The following table shows the rainfall at Kaptai in the Sitapahar reserve during the last two years, compared with that at Rangamattia during the same period :—

Table showing the Rainfall in the Sitapahar Reserve.

Month.	1877-78.		1878-79.	
	Rainfall in inches.	Number of rainy days.	Rainfall in inches.	Number of rainy days
April ...	1·41	6	7·17	7
May ...	4·40	10	7·43	10
June ...	13 71	23	12·67	13
July ...	18·96	27	18·67	25
August ...	42·45	28	29·35	27
September ...	23 77	20	16 38	23
October ...	3 06	10	7·49	9
November ...	·47	2	Nil.	...
December ...	·15	1	Nil.	..
January ...	12	1	·12	3
February ...	·27	2	·06	1
March ...	·42	2	·27	2
Total ...	109·19	132	99·61	120

Table showing the Rainfall at Rangamattia.

Month.	1877-78.		1878-79.	
	Rainfall in inches.	Number of rainy days.	Rainfall in inches.	Number of rainy days.
April ...	1·29	5	5·10	8
May ...	6·01	10	6·73	12
June ...	14 06	19	13·99	19
July ...	29·40	26	15·78	29
August ...	37·38	28	21·93	27
September ...	30·89	19	15 63	19
October ...	3 16	8	12·82	15
November ...	·61	4	3·31	5
December ...		...	·22	2
January ...	·52	2	·23	1
February ...	1·17	4	...	...
March ...	1·61	4	·44	2
Total ...	126·10	129	96·13	139

173. (*f*)—*Creeper cutting.*—This work has been continued in the Maiani reserve.

The following trees are reported to have been cleared of creepers :—

Jarúl	1,846
Chikrasi	262
Toon	205
Chaplis	1,017
Gurjun	1,117
Tali	9,872
Gambhar	290
Total ...	14,669

174. *(g)—Fire protection.*—All the reserves have been successfully protected. The only fire lines made were at Sitapahar, where lines were cut to protect the Sitapahar, Hoolingamara, and Kaptai blocks.

3.—Yield and Working.

175. During the first two months of the year the reserved forests were closed to the cutting of timber; and, as stated in last year's report, the returns of bamboos and minor produce cannot be shown separately from those of the open forests.

176. Since June, however, the reserved forests were open to cutting under the following regulations :—

1. No timber of the first and second classes, measuring less than 4 feet 6 inches in girth at 4 feet 6 inches from the thick end, to be cut.
2. The conversion of jarúl timber into dug-outs is prohibited.
3. The rates of payment levied on forest produce were—

Bamboos—	Rs.	A.	
Ora or mitinga	7	0	per 1,000
Dolu	4	0	"
Mooli and others	1	8	"
Grass	2	0	" bundles of 1½ feet girth.

These rates apply to produce exported from the reserved forests only, and are realized by the foresters in charge, who give a reciept to the exporters, which is recognised by the toll collectors stationed further down the rivers to realize payment on produce from the open forests. This receipt exempts them from further tax. Duplicates of these passes are also forwarded periodically to the Deputy Commissioner.

The rates, however, being higher than those levied in the open forests, the Bengali wood-cutters naturally resorted to the latter to the greatest extent.

177. The following table shows the produce removed from the reserves during the last ten months of the year :—

Description.	Number.	Amount realized.	Rate.	Remarks
Timber.		Rs. As. P.	Rs. As. P.	
Timber in boats	156 c.ft.	43 14 0	.....	
Saplings	38	4 12 0	0 2 0	each
Total IIa ...		48 10 0	.....	
Bamboos.				
Ora	1,000	7 0 0	7 0 0	Per 1,000
Mitinga	3,995	27 15 7	7 0 0	"
Dolu	13,457	53 13 9	4 0 0	"
Mooli	467,423	746 5 0	1 8 0	"
Total IIe ...	485,875	835 2 4	.....	
Other minor produce.				
Canes	223,685	223 11 1	1 0 0	"
Sun grass	73,590	147 3 8	2 0 0	"
Sun khola fees...	.....	216 4 0	.....	
Rice	.....	157 1 9	... .	
Total IIe ...		744 4 1	.....	
Total under II. ...		1,628 0 5	.....	

4.—Financial Results.

178. Taking only the revenue of the reserved forests, with the expenditure of the last ten months, plus half of those for the first two, we have—

	Rs.	Rs.
Revenue		1,700
Charges	A6,779 B11,328	18,107
Deficit	.....	16,407

a heavy deficit, which will gradually disappear as the reserves which are in course of formation are gradually brought under management, and their resources developed.

SECTION III.—UNRESERVED FORESTS AND PROTECTED FORESTS.

179. The "unreserved forests" are the following areas in Julpigoree and Chittagong:—

	Sq. miles.
In Julpigoree	8
„ Chittagong	5,100
Total ...	5,108

1.—Julpigoree Division.

In the Muraghat open forests 320 trees have been felled and logged, and 162 logs brought out and made over at cost price to the Deputy Commissioner of Julpigoree for provincial works.

In the Apalchand open forests 86 trees have been felled and will be similarly brought out and made over.

2.—Chittagong Division.

180. During April and May 1878 the management of the collection of Government dues on produce exported from the unreserved forests was in the hands of the department, but transferred on the 1st June to the Deputy Commissioner's, whose report will explain the system of working then introduced: "Since 1st June 1878 the management of the collection of Government dues on produce exported from the unreserved tracts has been placed at our disposal under orders of Government contained in letter No. 255T, dated 18th May 1878. Since then tolls on such produce have been levied in accordance with Government of Bengal's letter No. 255T, dated the 18th May 1878, at an *ad valorem* rate of 10 per cent., based upon the valuation lists of the different market rates at different times forwarded to this office periodically by the Collector of Chittagong. Holders of waste land lots have been allowed to pass the forest produce of their respective lots free of tolls. Restrictions against the felling of jarúl trees below three cubits in girth have been promulgated, and the passing of such logs entirely prohibited. Orders have lately been issued prohibiting the felling of gambhar, chaplis, toon, chikrasi, telsur, and other valuable trees of the above size, except when absolutely necessary for the purpose of clearing jooms. Cutting of jarúl trees for dug-outs has also been prohibited, and the officers of the different toll stations have been directed not to allow the export of the same. Certain restrictions have been passed with regard to the felling of gurjun trees. Under the rules now in force, no trees of this description are to be felled within the gurjun khola lots in the vicinity of villages. The system of granting permits was introduced here in 1873, and hitherto it has

been working very unsatisfactorily, especially in the Sungoo sub-division. Permits for collecting forest produce in the Sungoo valley beyond Thursakheong and up the Doloo, Hangar, and Tonkawattee had to be obtained from the Assistant Commissioner at Ruma, whose work in connection with the administration of the district kept him often away in the interior. In many instances persons desirous of obtaining permits have to undertake a five or six days' journey; on arrival at Ruma find that the Assistant Commissioner is absent and the date of his return is uncertain; they either have to wait an indefinite period, or they have again to present themselves at Ruma later on. However, certain rules on the subject of granting passes and levying fees have been lately passed by the Commissioner, and it is hoped that they will work satisfactorily.

Bungalows and toll-stations.

181. "During the year under report only one station-house has been built for the use of the Toll Collector of Sartah at a cost of Rs. 50, and three houses, including one cook-shed for the ministerial officers attached to this office Forest Branch, are in the course of construction at a cost of Rs. 400-12. Construction of two station-houses at Rs. 60 and Rs. 40 at Sylock and Issamuttee respectively have been sanctioned. Karnafooli toll-station has for some time past been held in the police station of Chandragona. The policy of toll and police officers working together is for many reasons inadvisable. The Toll Collector has therefore been ordered to submit plan and estimate for the construction of separate station-houses.

Breach of Forest Rules.

182. "During the year five cases against fourteen men were instituted. Of these, four cases with twelve persons were from Sylock station, and in connection with the produce of lot No. 2, and one case with one person from the Matamori toll-station. Of the four cases from Sylock, the first was one in which five men were accused of theft. It was alleged that they had taken a raft of gurjun planks from the vicinity of the toll-station. Case not being proved was dismissed. In the second case six men were charged with obstructing public servants in the discharge of their duties and of disobedience to an order duly promulgated by an officer so authorized. Defendants were convicted and sentenced to imprisonment—one to one year, four to nine months, and the remaining one to two months. The third case was one of cheating, and not being proved was dismissed. The remaining case was one of both cheating and disobedience. In one case from Matamori the Toll Collector has been accused of extorting more than the proper amount of tolls from a man bringing down a boat, and of misappropriating the same. This and the last case from Sylock are still pending."

Establishments.

183. The following was employed during the year:—

Office Establishment.

		Rs.
1 Head clerk	... ...	50 per month.
1 2nd „	... ...	20 „ „

Forest Establishment.

1 Forest ranger	... ...	50 „ „
5 Foresters at Rs. 30 each	... ...	150 „ „
2 Ditto at „ 25 „	... ...	50 „ „
2 Ditto at „ 20 „	... ...	40 „ „
1 Forester at „ 15 „	... ...	15 „ „
1 Guard at „ 10 „	... ...	10 „ „
14 Guards at „ 8 each	... ...	112 „ „
14 Ditto at „ 6 „	... ...	84 „ „
	Total ...	581 „ „

Yield and Working.

184. The following tables give the collections made by the Forest Department and by the Deputy Commissioner during the year:—

	By Forest Department.	By Deputy Commissioner.	Total.
	C. feet.	C. feet.	C. feet.
Timber in logs	1,188	4,112	5,300
" in boats	1,732	2,569	4,301
" in beams and planks	619	3,105	3,724
Total of Timber ...	3,539	9,786	13,325
Ora and mitinga bamboos	6,805	143,050	149,855
Dolu "	160,146	432,525	592,641
Mooli "	2,294,338	8,748,544	11,042,932
Sun grass, bundles	1,533,134	1,469,704	3,002,838
Canes	1,090,615	760,757	1,851,372
Gurjun oil, maunds	369	143	512

This table excludes the amounts collected on the reserved forests and on waste land lots which were collected by the holders of those lots.

Continuing the table given at paragraph 260 of last year's report, we have—

Description of Produce.	Years.							
	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78	1878-79.
	C. feet.	C. feet.	C. feet.	C. feet.	C. feet.	C. feet.	C. feet.	C. feet.
Timber in logs	22 150	52,800	30,500	56,500	51,600	26,616	21,750	5,300
" boats	9,760	43,560	65,600	151,760	98,520	65,569	5,740	4,301
" beams and planks ...	33,640	760	20,360	44,400	7,080	11,453	10,039	3,724
Total of Timber ...	65,350	97,120	1,16,460	252,660	157,200	103,638	37,529	13,325
Ora bamboos, number	.....	.....	.....	196,397	163,115	105,983	84,716	149,855
Dolu " "	.....	.....	.....	641,496	726,120	496,734	628,196	592,641
Mooli " "	.....	.....	.....	26,616,140	17,754,291	14,262,763	11,365 643	11,042,932
Sun grass, bundles	.....	.....	.....	6,022,121	4,957,644	4,529,443	5,316,493	3,002,838
Canes, number	.....	.....	.....	2,327,913	4,869,858	3,244,500	2,728,408	1,851,372
Gurjun oil, maunds	.....	.....	.....	216	816	865	418	512

Financial Results.

185. The actual receipts and expenditures were—

	April and May 1878, collections by Forest Department.		June 1878 to March 1879, collection by Deputy Commissioner.
	Rs.	Rs.	Rs.
Receipts ...	7,212	24,987	32,199
Expenditure ...	A 395	74	7,410
Ditto ...	B 1,736	5,205	
Surplus ...	.....	.....	24,789

The Deputy Commissioner says—"Over and above this sum Rs. 2,845-8 have been collected in the shape of permit fees at Rangamattia, Ruma, and Cox's Bazar during the year.

"Our revenue has fallen off considerably. This decrease may be attributed to the following causes:—

"(*a*).—Maiani valley yields a fair portion of bamboos and canes which are brought down the Karnafooli. Collections in this valley, as also in the Sitapahar and Matamori reserves, have been made by the Forest Department. Export from waste land lots has also been allowed free of tolls.

"(*b*).—Soobalong, a tributary of the Sungoo, Doloo, Hangar, Tonkawattee, Sylock and Issamuttee, were closed for nearly three months during the year.

"(*c*).—Difficulties in obtaining permits for collecting forest produce from the Sungoo and Doloo valleys.

"(*d*).—The reduced condition generally of the country consequent on bad crops, a falling-off in the demand for, and the reduced market value of, building materials, and the temporary absence of many of the people who had repaired to the Arracan Hill Tracts and elsewhere in quest of work.

"I am inclined to think that our revenue has also suffered from the absence of a proper checking officer. The district officer or his subordinates have not, as a matter of fact, sufficient leisure to supervise the working of the toll-stations.

"During the year under report, the Karnafooli toll-station was visited only three times, and the Sungoo one only twice. Constant and close supervision over the holders of waste land lots is imperatively necessary, as also over the toll collectors. Whilst the management was vested in the officers of the Forest Department, the duties of check and supervision were much more regularly and systematically performed. Under the present arrangement such duties can only be performed in a spasmodic and perfunctory manner."

PROTECTED FORESTS.

3.—Sunderbuns Division.

186. In notification of the 7th December 1878, the remaining forests of the 24-Pergunnahs Sunderbuns, not taken up as reserves, and covering an area of 1,851 square miles, were declared to be "protected forests," and in notification of the 24th February 1879 the following lots were also declared—

			Square miles.
Lot 165 in 24-Pergunnahs	...	...	24
Lots 216, 224, 225 in Jessore	...	...	50

But their management by the department and the collection of revenue in them was postponed in consequence of the rules not being ready, and on the publication of the rules in April, orders were given that the revenue collection should commence on 1st July.

187. Five new stations, viz.—

Basirhat range { Rampoora, Mutlah, Bagee,
Diamond Harbour range { Saterbog, Mooreogunga,

will be established. The forests do not differ much in constitution from those of the reserves, the chief difference being that soondri is not so plentiful, and is to a large extent replaced by goran, west of the Arpungassya.

SECTION IV.—GENERAL REMARKS.

188. During the year the Inspector-General of Forests visited the forests of the Julpigoree and Buxa divisions in company with the Officiating Conservator, travelling from Julpigoree eastwards to Assam. The inspection tours of the Officiating Conservator also included the Darjeeling and Chittagong divisions and parts of Kurseong, the Conservator, Dr. Schlich, having also visited the Darjeeling, Teesta and Kurseong divisions previous to his going on furlough.

189. The *health* of both the superior and subordinate establishments has not been good. The Conservator, Dr. Schlich, had to take leave to Europe on the 23rd January 1879, and since the close of the year Mr. Jacob, Deputy Conservator, and Mr. Green, Officiating Assistant Conservator, have both had to take leave, the former on one year's furlough, the latter on privilege leave, but on medical certificate.

190. *Officers' services.*—Owing to the short time he has been in charge, the Officiating Conservator can say but little on this head. Before leaving, however, Dr. Schlich had expressed his satisfaction with the work done by

Mr. McDonell, Deputy Conservator, Messrs. Fuchs, Richardson, Manson and Chester, Assistant Conservators, and Mr. Smith, Sub-Assistant Conservator, and in this satisfaction the Officiating Conservator cordially agrees, and at the same time has had reason to be satisfied with the work of Messrs. Johnston and Green. Mr. H. H. Davis, Assistant Conservator, who was expected back from leave at the end of 1878, has had again to take an extension of leave, so that he will not now return till December 1879. Mr. H. R. Ring, who was in charge of the Julpigoree division during the year, suffered very much from fever, of the illness brought on by which the Officiating Conservator regrets to say he died on the 15th June 1879, soon after receiving the news of his promotion to Assistant Conservator, 3rd grade, promotion he had long waited for.

191. The following changes in divisional charges took place during the year. Mr. G. W. Strettell, Deputy Conservator, transferred temporarily from Burma to the Sunderbuns division, relieving Mr. Richardson, who proceeded to Buxa, whence Mr. Fuchs was transferred to the Teesta division. Mr. Johnston, who was in charge of the latter, was deputed on demarcation work first to Koderma, and then to the Julpigoree forests, the demarcation of which he has completed satisfactorily in spite of an unhealthy season and his own frequent illness. Mr. R. N. Anstruther joined from Buxa and was posted to the Teesta division to assist in demarcation work, and Mr. L. G. Smith, appointed a Sub-Assistant Conservator on probation, was appointed to the charge first of the Goompahar, and then of the Tukdah range of the Darjeeling division.

APPENDIX A.

NOTIFICATION.

The 23rd January 1879.—In exercise of the powers conferred by section 34 of the Indian Forest Act, 1878, the Lieutenant-Governor hereby declares the lands described in the schedule hereto annexed to be reserved forests:—

DISTRICT.	Pergunnah or other Sub-division.	Name of Forest.	Description of Boundaries.
Darjeeling	Hill Territory.	Goompahar	*North.*—The Little Runjeet; then a line running from it along the south boundary of the Mim, Tumsong, Chongtong, and Risheehat estates. *East.*—The west boundary of the Darjeeling municipality. *South.*—The Toongsong estate; then the Poobong estate; then the Palungdong khas mehal; then the Pugrainbong khas mehal; then the Silimbong and Rungbong estates. *West.*—The Nepal frontier to the Little Rungeet. The following two locations, situated within the above boundaries, are not included in the reserve forest:—(1) an area of 10 acres at Jore Pokri; (2) an area of 10 acres at Seemana bustee.
Ditto ...	Ditto ...	Dooteria ...	*North-west.*—The Bing jhora. *East.*—The Hill cart road. *South.*—The new Dooteria road. *South-west.*—A demarcated line separating the reserve from the Dooteria tea estate.
Ditto ...	Ditto ...	Rungirum, Tukdah, and Sinchal.	*North-west, North, and North-east.*—The Rungnoo jhora; then the Sinchal jhora; then the Rungirum estate, at present under lease with Mr. Wilson; then the Rungnoo jhora; then the Kejok and Pashundi jhoras; then a line from the latter to the Ramaun jhora, separating the Charlesfield estate from the Government forest land; then the Ramaun jhora; then the Mineral Spring estate; then the Darjeeling Company's land; then the Tukdah khas mehal, under lease with Prem Chunder and others; then the Lockchoo khas mehal; then the Pashok estate to the Rungeeac jhora. *East and South-east.*—The Hoom khas mehal; then the Rungli Rungliot estate; then the Ponong khas mehal; then the Rungjo jhora; then the Rungbee road; then the new road from Jore bungalow to Rishap as far as the Rungbee jhora; then a line to the watershed between the Rungbee and Raing jhoras; then the watershed between the Rungbee and Raing jhoras; then the watershed between the Balasun river on the one side and the Raing and Mahanuddy rivers on the other. *South.*—The Maharajah of Burdwan's land. *West.*—The Hill cart road, but excluding the following locations:—(1) Mr. Dowe's; (2) Mr. Ward's two locations; (3) Road reserve location; (4) Major Wardroper's two locations; (5) & (6) Road location; (7) The Maharajah of Burdwan's location from Chuttukpore to Punchim jhora; (8) The Government road location near Sonada; (9) The Hope Town location; (10) The Maharajah of Burdwan's location, Paharpore; (11) Road location at Rungbúl; (12) Three locations at Jore bungalow.
Ditto ...	Ditto ...	Badamtam...	*North.*—The Rungeet and Great Rungeet rivers. *East.*—The Rungnoo river. *South.*—The Rungnoo river; then Mr. Barnes' estate. *West.*—Mr. Stewart's estate.
Ditto ...	Ditto ...	Sumbong, Pashok, and Geeljong.	*North.*—The Great Rungeet. *East.*—The Teesta. *South.*—The Raing and Rungjo jhoras. *West.*—The Ginlam (Jinglam) tea estate; Teesta valley tea estate; then the Mungwa khas mehals; then the Pashok estate; then the Rungbong jhora; then Mr. Vanzuilicum's estate; then the Sumbong estate up to the Great Rungeet.
Ditto ...	Ditto ...	Seem ...	*North.*—A line running from the Poosongpoong ridge to the Sumbong ridge. *East and South-east.*—The Sumbong ridge. *South-west and West.*—The Poosongpoong ridge.
Ditto ...	Ditto ...	Dhobijhora	*North.*—The old Kurseong-Darjeeling Military road. *East.*—Jawan Sing's land. *South.*—Mr. Bell's land and the Castleton tea estate. *West.*—The old Kurseong-Darjeeling Military road; then the Northern Bengal Railway settlement; then again the old Kurseong-Darjeeling Military road.
Ditto ...	Ditto ...	Munjhooa...	*North.*—The Pingloo Tar. *East.*—The Balasun river. *South.*—Mr. Treutler's estate. *West.*—The Singbulleo and Munjhooa estate.
Ditto ...	Ditto ...	Khyrbani...	*North.*—A foot-path leading from the Mechi river to Tingling stockade. *East.*—The Munjha river. *South and South-west.*—Dr. Barker's tea estate. *West.*—The Mechi river.
Ditto ...	Ditto ...	Mechi ...	*North.*—The Khyrbani forest. *East.*—Mr. Davies' estate and Lohagurree forest. *South.*—The Terai Mechi forest. *West.*—The Nepal territory.
Ditto ...	Ditto ...	Koohein ...	*North.*—Captain Cornish's (Mr. Lloyd's) estate. *East.*—Bhakat Bir's land. *South.*—The Koohein jhora. *West.*—The Mechi.
Ditto ...	Ditto ...	Lohagurree	*North.*—Mr. Davies' and Dr. Barker's estates. *East.*—The Munjha nuddee. *South.*—The Darjeeling Terai. *West.*—The Mechi forest.
Ditto ...	Ditto ...	Munjha ...	*North.*—Major Sherwill's land. *East.*—The Balasun. *South.*—The New Terai and Indian Terai tea companies. *West.*—The Munjha nuddee. Within the above boundaries two locations, belonging to the Indian Terai Tea Company and to the new Terai Tea Company, are situated. These are not included in the reserve.

District.	Pergunnah or other Sub-division.	Name of Forest.	Description of Boundaries.
Darjeeling	Hill Territory.	Bamunpokri	*North.*—Mr. Pereira's land. *East.*—The Rukti river. *South.*—The Pelkoo Dass and Bamnee jotes. *West.*—The Bansunmallee jhora.
Ditto ...	Ditto ...	Lama Gumba.	*North.*—Mr. Owen's land. *East.*—Mr. Owen's land. *South.*—Mr. Southby's land. *West.*—The Rohonee jhora. Within the above boundaries is situated a location comprising 6 acres 2 roods 3 poles which is not included in the reserve.
Ditto ...	Ditto ...	Sibakhola...	*North-east.*—The Sibakhola river. *South-east.* Mr. Bell's land. *South.*—The Maharajah of Burdwan's land called Kurjung. *West.*—The Hill cart road.
Ditto ...	Partly Hill Territory and partly Terai.	Sukna-Teesta Forest.	*North-west and North.*—Mr. Bell's land (survey No. 182); then the Sepoydoorah estate (survey No. 196); then the Norbong estate (survey No. 189); then the Mahanuddy river; then the Mana jhora; then the watershed between the Raing on one side and the Mahanuddy and Teesta on the other side; then a line running from the said watershed to the junction of the Raing and Rungjo rivers; then the Raing down to its junction with the Teesta. *East.*—The Teesta river. *South.*—The Boycuntpore estate; then the Gulma river; then survey Nos. 877 882, 855, 865, 879; then the eastern half of the Mahanuddy river opposite survey Nos. 879, 866, and 870; then the Mahanuddy river; then the Moorgong estate, survey No. 827; then survey No. 845A; then Kynanooka jote; then the Ganges and Darjeeling cart road; then survey Nos. 787, 936, 944, 921, 927. *West.*—The Chamta nuddee, which skirts survey No. 973 and passes through survey No. 970; then survey Nos. 970 and 976; then the Khooklong nuddee; then a demarcated line to survey No. 182. The jote known as 'Shilibhita' is not included in the reserve.
Ditto ...	Terai ...	Mechi ...	*North.*—The Darjeeling Hills. *East.*—Survey Nos. 1009¼, 35, 106 79, 75. *South.*—Survey No. 24. *West.*—The Mechi river.
Ditto ...	Ditto ...	Soorj Bur Forests.	*North and East.*—Survey No. 76. *South.*—Survey No. 45. *West.*—The Mechi.
Ditto ...	Ditto ...	Balasun and Dulkajhar forests.	*North.*—The Darjeeling hill territory and survey No. 997. *East.*—Survey Nos. 1001, 990A, 990, 990B, 967, 989, 903, 953. *South.*—Survey Nos. 979, 702, 673, 738, 704, 742; then the Hurlia nuddee; then survey No. 583; then the Hurlia nuddee again; then survey Nos. 717, 721, 582, 636, 605, 636 again; then the Taipoo nuddee; then the Kaldoe nuddee; then survey Nos. 573, 589, 577. *West.*—The Lulfa jhora; then survey Nos. 420, 419, 380, 378, 385, 407 (Tepra Bhola), 1006¼, 1006¼, 1006¼. The jotes known as Major Wardroper's and Rishabari are not included in the reserve.
Ditto ...	Ditto ...	Rukti ...	*North.*—The Silligori-Punkabari road. *East and South-east.*—The eastern branch of the Rukti river. *West.*—Survey Nos. 990B, 908, 911, and the western branch of the Rukti river.
Ditto ...	Hill Territory.	Merig ...	*North.*—The Rungbong river. *East.*—The Murma estate. *South.*—The Phoogarhi land. *West.*—The Siminpokri, Singhee Sooba's, and Tharboo estates.
Ditto ...	Dumsong	Nazzeok ...	*North.*—The Rilli river and its feeder the Reyoong. *East.*—The watershed between the Seth and Siok jhoras; then the watershed between the Door and Siok jhoras up to the trigonometrical point at Nazzeok. *South.*—The watershed between the Door jhora on one side and the Runeyoth and Gooling jhoras on the other side, from Nazzeok to the Teesta. *West.*—The Teesta.
Ditto ...	Ditto ...	Tunang ...	*North-west.*—The Rilli. *North-east.*—A line running along a ridge from the junction of the Rereoong and Rilli rivers to Tunang. *South-east.*—A line running along a ridge from Tunang to the junction of the Nuboong and Reyoong rivers. *South-west.*—The Reyoong river.
Ditto ...	Ditto ...	Rinkinpung	*North and East.*—The Teesta-Kalingpung road; then a line running south from it and nearly parallel with the Teesta until near Tunklong; then following a ridge to Rinkinpung, and another spur running in an eastern direction to the Rilli; then the Rilli. *South-east.*—The Rilli. *West.*—The Teesta.
Ditto ...	Ditto ...	Kalingpung	*West and North-west.*—The Teesta. *East, South-east, and South.*—The Torchu; then a line running nearly parallel to the Teesta, at a distance of from half to one mile to the Teesta-Kalingpung road; then the Teesta-Kalingpung road.
Ditto ...	Ditto ...	Dumsong...	*North.*—The Rungpo Chu. *East.*—A line running along a ridge from the Rungpo Chu, between Cashun and Kohu, until close to Dumsong; then along the road from Dumsong to Duschung; then along the road from Duschung towards Kalingpung. *South.*—A line running from the Kalingpung-Duschung road to the watershed between the Teesta and Rilli rivers, meeting that watershed about three-fourths of a mile south-west of Eecha; then running first in a northerly and then a westerly direction to the Torchu. *West.*—The Torchu, and then the Teesta.
Ditto ...	Ditto ...	Payong ...	*North-west.*—The Kalingpung-Duschung road. *North-east.*—The watershed between the Noonchu and Maydong rivers, and then the Kalingpung-Laba road. *South-east*—The watershed between the Noonchu and Rilli rivers. *South-west.*—A line running from the south-eastern boundary to the Kalingpung-Duschun road.

District.	Pergunnah or other Sub-division.	Name of Forest.	Description of Boundaries.
Darjeeling	Dumsong	Maydong...	*North.*—An irregular line running from the Kalingpung-Duschung road to the Pakathaw monastery. *East.*—The watershed between the Maydong and Rushett rivers. *South.*—Kalingpung-Laba road. *West.*—The Kalingpung-Laba road, and then the watershed between the Noon Chu and Maydong rivers, and then the Kalingpung-Duschung road.
Ditto ...	Ditto ...	Khempung	*North and East.*—The Kalingpung-Laba road. *South.*—The watershed between the Rilli and Jeet Chu rivers as far as the Siehoor hills; then a ridge running from Siehoor towards Palli. *West*—A line running from the southern boundary to the Pako Chu; then the Pako Chu; then the Rilli; then the Kaling Chu and then a line running from the Kaling Chu to the watershed between the Rilli and Noon Chu rivers; then up at watershed to the Kalingpung-Laba road.
Ditto ...	Ditto ...	Loolagaon	*North.*—A ridge running from Siehoor towards Pali. *East and South.*—The watershed between the Rilli on one side and the Jeet and Lessoo rivers on the other side. *West.*—A line running from the south boundary to the Rereoong; then to the Rungno Chu, and then to the ridge running from Siehoor towards Pali.
Julpigoree	Western Dooars.	Apalchand	*North.*—A demarcated line near the southern boundary of Udlabari talook and the Chel nuddee.— *East.*—A demarcated line running from the Chel nuddee along the western boundary of the late Durga Mechi's land, known as Khatea Gaon Rajadanga; then in a westerly direction to the northern boundary of Binua Ram zemindar's land known as Khilabari Rajadanga, to the Phul nuddee; then across that nuddee along the southern boundary of the sâl forest to the land of Maher Ali and others, known as Kala Duar, skirting these to the high land north of Kadambari village, along the edge of that high land to the Apalchand river, excluding the land known as Shamsher pokri; then the Apalchand river; then round the Sidabari jote, so as to exclude it; then again the Apalchand river; then a demarcated line running from the Apalchand to the Gila nuddee; then the Gila nuddee; then a demarcated line running in a southerly, easterly, and again in a southerly direction to the Duramari nuddee so as to exclude all lands under settlement with jotedars. *South.*—The Duramari and Chengamari nuddees; then a line from the latter to the Teesta so as to exclude Pataro's jote. *West.*—The Teesta river and a demarcated line running along the southern and eastern boundary of the Gazlidhuba tea estate; then the Apalchand; then the Duduamari nuddee; then a demarcated line running in a westerly and north-westerly direction to the Gonda jhora; then following the boundaries of Punjab Sing's and Mr. Haughton's jotes up to the north boundary.
Ditto	Ditto	Tundu ...	*North.*—The boundary between the Julpigoree and Darjeeling district. *East.*—The Jhuldaka river; then a demarcated line running near its eastern bank; then again the Jhuldaka. *South.*—A demarcated line near the west bank of the Jhuldaka; then the Jhuldaka; then the Murti river; then a demarcated line running from the Murti, first in a southern and then in a western direction to the Dhurla river, meeting the latter just above Lataguri Hât. *West.*—First the Dhurla river; then a demarcated line round Borodighi jote so as to exclude it; then again the Dhurla; then a demarcated line running from the Dhurla, first in an eastern and then north-eastern direction, to the Murti river; then the Murti; then a demarcated line running from the Murti to the Indong river; then the Indong.
Ditto	Ditto	Dainah ...	*North.*—The Bhootan boundary. *East and South.*—The eastern bank of the Longtee river; then a demarcated line running first approximately parallel with the Dainah river, and then back to that river; then the east bank of the Dainah river; then a line running approximately parallel with the Dainah and back to the Dainah, meeting it close to its junction with the Jhuldaka; then the Dainah. *West.*—The Jhuldaka; then a demarcated line following the boundary of the Bamundanga tea estate back to the Dainah; then the Dainah; then a high bank; then again the Dainah; then the Ghateea then the Coojee Dainah; then a high bank; then again the Coojee Dainah; then a line to the Chengmaree plateau; then along the edge of that plateau to the Dainah; then the west bank of the Dainah to the Bhootan frontier.
Ditto	Ditto	Muraghat	*North.*—A demarcated line running from the source of the Kanai nuddee to the source of the Garati nuddee. *East.*—The Garati nuddee; then a short line to the Ghairruta nuddee; then the Ghairruta nuddee. *South and west.*—The Nonai nuddee and then the Kanai nuddee.
Ditto	Ditto	Dulgaon ...	*North.*—A line running from the Tasahti to the Birpiti nuddee. *East.*—The Birpiti nuddee. *South.*—A line running from the Tasahti to the Birpiti nuddee. *West.*—The Tasahti nuddee.
Ditto	Ditto	Dumchi ...	*North.*—A line running from the Dabdoob nuddee to a jhora which joins the Sookhan-Titi nuddee. *East.*—A jhora which joins the Sookhan-Titi and the Sookhan-Titi nuddee. *South.*—The Sookhan-Titi nuddee and the Wihtee nuddee. *West.*—The Sap jhora and the Dabdoob nuddee.

District.	Pergunnah or other Sub-division.	Name of Forest.	Description of Boundaries.
Julpigoree	Western Dooars.	Khairbari	*North-west and West.*—The Sookhan jhora and a line close to the Gungthung nuddee; then the Gungthung nuddee. *East and South-East.*—A line from the Sookhan jhora to the old Toorsa nuddee; then the old Toorsa nuddee.
Ditto	Ditto	Borojhar ...	*North.*—The Bhootan frontier. *East.*—The Hashmara, Balla, Tursa and Molungi nuddees; then a demarcated line from the Molung nuddee to the Buri Basra nuddee; then the Buri Basra and Alaikuri nuddees. *South.*—The Bania nuddee; then a demarcated line from it to the Buri Tursa; then the Buri Tursa river. *West.*—The Ulundi nuddee; then a demarcated line to the Hashmara nuddee; then the Hashmara nuddee; then a demarcated line to the Tursa, and the Tursa river up to the Bhootan frontier.
Ditto	Ditto	Buxa ...	*North.*—A demarcated line from the Alaikuri or Pana river, running in a south-easterly direction to the Alipore-Buxa road, meeting it just below Sentrabari; then running first in a north-easterly and then in a south-easterly direction to the Bhootan frontier. *East.*—The Bhootan frontier; then the Guddadhur river; then a demarcated line running first west, then south, then east, back to the Guddadhur river; then again the Guddadhur river. *South*—A demarcated line running from the Guddadhur in a westerly direction to the Paror nuddee. *West.*—A demarcated line from the Paror river to the Nimti nuddee; then the Nimti nuddee; then a demarcated line running first east, then south-east, then east, and then north to the Gurm nuddee; then the Gurm nuddee; then a demarcated line to the Alaikuri river; and the Alaikuri river to the north boundary.
Ditto	Ditto	Raidak ...	*North.*—The Bhootan frontier. *East.*—The Raidak river. *South.*—A small jhora joining the Raidak river with the Nasirpak nuddee. *West.*—The Nasirpak nuddee; the Chipra nuddee; a demarcated line from the Chipra nuddee, first in a north-eastern, then eastern, then northern, and then western direction to the Dhola jhora; the Dhola jhora; and the Bhootan frontier to the north boundary.
Ditto	Ditto	Dhampara	*North.*—The Bhootan frontier. *East.*—The Sunkos river. *South.*—A demarcated line running from the Sunkos, first in a western, then north-western, and then again western direction to the Raidak river. *West.*—The Raidak river.
Ditto	Ditto	Bholka ...	*North.*—The Sunkos river. *East.*—The Sunkos river, the Bhataldara jhora, and the Jhorai nuddee. *South.*—A demarcated line running from the Jhorai, first in a westerly and then north-westerly direction to the Kulkuli nuddee. *West.*—The Kulkuli nuddee; then a demarcated line from the Kulkuli in a north-easterly direction to the Gholanee nuddee; then the Gholanee nuddee; then a demarcated line from it in a north-easterly direction to the Sunkos.
Lohardugga.	Palamow	Kechki ...	*North.*—The Aurunga river. *West.*—The Koel river. *South-east.*—A line running from the Koel to the Aurunga.
Ditto	Ditto	Betla ...	*North.*—The north boundary of mouzah Hateeyali; then the western boundary of Damooder Khar; then down a feeder of the Aurunga river to that river; then the Aurunga. *East.*—The Aurunga river. *South.*—The south boundary of Damooder Khar; then down a small stream joining the Teorahee nuddee; then up the Teorahee nuddee; then the northern boundary of Lookum Khar, Gadee, and Kocheelah mouzahs. *West.*—A straight line running from the junction of the boundaries of Kocheelah, Ookamand, and Moondah in a northerly direction to the junction of the boundaries of Moondah, Dooramee, Ukhera, and Betal mouzah.
Ditto ...	Ditto ...	Saidope ...	*North.*—The northern boundary of Khamee tuppa to the junction of the boundaries of Morwaie, Kullan, Jurgudh, Ganseday, and Lat, then following the western boundary of Jurgudh to a western feeder of the Douree nuddee; then down that feeder to the western boundary of Saidope; then along that boundary in a southerly direction to the foot of the hills; then following the foot of the hills to the eastern boundary of Saidope; then the eastern boundary of Saidope to an eastern branch of the Douree nuddee; then that branch until to a point about one mile north-west of Hurnomand village; then a line running in a southerly direction to the foot of the hills; then following the foot of the hills to the western boundary of Joroahur; then a line following a small stream for about one mile in a north-easterly direction, and then northerly direction to the junction of the boundaries of Gadee, Cheepadohur, and Kedh; then along the northern boundary of Kedh to the Aurunga river. *East.*—The Aurunga river; then the Pooboa and Jeewa nuddees. *South.*—The western boundary of Baree tuppa; then up a feeder of the Jeewa nuddee; then following the foot of the hills up to the Charo nuddee; then the Charo nuddee and the Koel river. *West.*—The western boundary of Meral mouzah.
Ditto	Ditto	Kumandee	*North.*—A line starting from the north-eastern boundary of Kutteeyah and following the foot of the hills to the western boundary of Kumandee; then along the southern boundary of Kumandee; then up a small stream; then the southern boundary of Nowgadha; then down a small stream for a short distance; then up another branch of it; then along the southern boundary of Bindi.

District.	Pergunnah or other Sub-division.	Name of Forest.	Description of Boundaries.
Lohardugga.	Palamow	Kumandee	*East.*—The western boundary of Bichra and Zer. *South*—The north-eastern boundary of Munkheree tuppa; then the northern boundary of Kookoo; then the Ranee Deh nuddee to where the north-eastern boundary of Kutteeyah crosses it. *South-west.*—The north-eastern boundary of Kutteeyah.
Ditto ...	Ditto ...	Ramundag	*North.*—The Burmahee nuddee; then a line running in an eastern direction to the western boundary of Purroh; then the northern boundary of Purroh and Ramundag; then the eastern boundary of Khamee tuppa; then the northern boundary of Kantokona and Koreemoree mouzahs to the Dhadoon nuddee. *East.*—The Dhadoon nuddee. *South.*—The Jorhur nuddee and the Koel river. *West.*—The Goanjh nuddee.
Ditto ...	Ditto ...	Barasand ...	*North.*—The Koel river. *East.*—The eastern boundary of Baras and Tuppah. *South.*—A line running from the east boundary of Baras and Tuppah, first in a northerly and then easterly direction, to the junction of the Baras and Checharee roads; then following the Checharee road in a southerly direction to where it crosses the northern boundary of Checharee tuppa; then following the northern boundary of Checharee tuppa in a westerly direction. *West.*—The western boundary of Baras and Tuppah.
Ditto ...	Ditto ...	Seema ...	*North.*—The southern and eastern boundary of Maromand; then the southern boundary of Loiah; then the western boundary of Hoolok; then the northern boundary of Serum; then the western boundary of Darocchapur, Jaigir, and Bareebun; then the northern boundary of Kanteh for about one mile; then a line running in a southerly direction to the south boundary of Kanteh; then the south boundary of Kanteh, Toreedag, and road to a small feeder of the Koel; then down that feeder to the Koel. *East.*—The Koel river. *South.*—Starting from the Koel, first the south boundary of Palamow until where it meets the edge of the Neturhat plateau; then a line following the edge of that plateau in a northerly direction until opposite the source of a small stream which joins the Pindra nuddee about one mile below Pinda; then a straight line running in a westerly direction to where the southern boundary of mouzah Koorgee hits the western boundary of Seema tuppa. *West.*—The western boundary of Seema tuppa.
Shahabad	Sasseeram.	Rhotas plateau.	The Rhotas plateau being the table-land bounded on all sides by the slopes known as the Rhotas slopes, except on the south-west corner, where a narrow neck of land joins it to taluka Rehul.
Ditto ...	Ditto ...	Rhotas slopes	The Rhotas slopes being sides of the hill from the plain to the crest, the summit of which forms the Rhotas plateau, the said slopes extending irregularly for a distance of about 28 miles round the plateau.
Ditto ...	Ditto ...	Rohal plateau.	The Rohal plateau, comprising that part of taluka Rohal which is at present held khas by Government, and including the cultivated portion formerly settled with the Maharajah of Deo, and lately taken up under the Land Acquisition Act. The plateau is bounded on the south and east by the Rohal slopes, on the north by mouzahs Boodhua and Chunda, and on the west by mouzahs Borgar and Pipardip.
Ditto ...	Ditto ...	Bans-i-Koh	The tract of land known as the Bans-i-Koh, being a strip of land about six miles in length comprising slopes and valley; bounded on the north by the plateau villages of Dholdag, Bundah, and Sodag, and on the south by mouzahs Mudkopea and Nomadih, Amangua, Teera-Khurd, and Kalon.
24-Pergunnahs. Jessore ...	Satkhira Khoolna, Bagirhat.	Sunderbuns.	*North.*—From the Kalindi nuddee, eastward along the northern boundary of the ungranted portion of lot No. 164, called Koekhali, to the Jaboona river; then down the Jaboona; then along the eastern boundary of the Kalenchi Abad; then the Moor Gong; then the Aburi and Allooah khals; then up the Eshamutty river; then along the northern boundary of ungranted lot No. 169; then the Chuar Gong; and then the Colputto river, to the Arpungassya river; then the Shakbaria nuddee; then the Mysaleer khal to its junction with the Seepsah river; then southwards along the Seepsah river to the point where it is joined by the Sootur Khalee river; then northwards along the said Sootur Khalee until it joins the Bhudder river; then southwards along the Bhudder river to the point where it is met by the khal or creek called Loutakhalee in the maps, but locally known as Khajoorbaria khal, and which said khal forms the northern boundary of lot No. 226, called Kurumjal; then along the south and west banks of the said Loutakhalee creek or Khajoorbaria khal to its junction with the Pussur river; then a short distance south along the Pussur river and across it to the Nora Cheela khal, which forms the northern boundary of lot No. 240; then along the said Nora Cheela khal to its junction with the gang or river called Cheela Chandpie; then across the Cheela Chandpie, and along the south bank of the Khurma nuddee or river as far east as its point of junction with the Bhola river, which flows on the west of the well-known lots Nos. 2, 3, 4, 5, 6, and 7 Khowlea Barisal. *East.*—The Bhola river; then the Bogee khal and the Hooringotta river. *South.*—The Sea. *West.*—The Kalindi nuddee and the Roymungul river.

District.	Pergunnah or other Sub-division.	Name of Forest.	Description of Boundaries.
Chittagong Hill Tracts.	.....	Miani ...	The area drained by the Miani river, bounded as follows :—*North.*—Hill Tipperah. *East.*—The watershed between the Miani and Kasalong rivers. *West.*—The watershed between the Miani and Chingri rivers. *South.*—A demarcated line from the mouth of the Miani river, east and west, to the eastern and western boundary.
Ditto ...	.....	Sitapahar .	A block consisting of two pieces of land on the banks of the Kurnafooli, east of Sitapahar, the boundaries of which run as follows :—*First piece.*—Starting from the Kurnafooli, opposite Sitapahar, in a northern direction for about one mile; then following a ridge towards the east and south-east until it meets the Kurnafooli near a place called Fukeerachar; then down the Kurnafooli until opposite Sitapahar. *The second piece* of land is bounded on the north by the Kurnafooli; on the east by the Kaptie; south by a line parallel with the Kurnafooli at about three-fourths of a mile distance; west by a small stream joining the Kurnafooli opposite Royonpara.
Ditto ...	.....	Matamori...	*East.*—The watershed between the Matamori river on one side, and the Twine Choung and Sungoo river on the other side. *South and West.*—The watershed between the Matamori river on one side, and Arrakan and the area drained by the Bagkhali river on the other side. *North.*—A demarcated line running from Alai Khwadong east and west to the eastern and western boundaries.

APPENDIX B.

Dated Calcutta, the 22nd April 1879.

NOTIFICATION—By the Government of Bengal, Revenue Department.

The following rules passed by the Lieutenant-Governor of Bengal, under sections 31 and 41 of the Indian Forest Act (VII of 1878), having received the sanction of the Governor-General in Council, are hereby published for general information. They will take effect in the Protected Forest tracts of the Sunderbuns described in the Schedule annexed to the Notifications of the 7th December 1878 and 24th February 1879 (published in the *Calcutta Gazette* of the 11th December 1878 and 26th February 1879), and will come into force from the 1st July 1879.

Rule I.—On and after the 1st July 1879, no trees, timber, or any other forest produce shall be cut, sawn, gathered, or removed from within the boundaries of the Sunderbuns Protected Forests without pre-payment in full of the charges due thereon at the rates following :—

(1) For every maund of sundri timber, one anna.

(2) For every maund of any other forest produce, one-fourth of an anna.

Rule II.—Any person desiring to enter the Sunderbuns Protected Forests for the purpose of cutting, sawing, converting, gathering, or removing trees, timber, or any other forest produce, shall take out a permit or license for the produce which he proposes to remove. The said permit will be granted only, on pre-payment of the prescribed charges, by the officer in charge of the Sunderbuns Forest Division, or by any of his subordinates duly authorised to receive payment and to issue permits.

Rule III.—The holder of a permit or license for the cutting, sawing, conversion, gathering, or removal of any forest produce within the boundaries of the Sunderbuns Protected Forests, shall produce the said permit or license when called upon to do so by any forest or police officer, and shall further be bound, on leaving the Sunderbuns Protected Forests, to return the said permit or license to one of the forest officers in charge of the revenue stations, a list of which will be notified from time to time in the *Calcutta Gazette.*

Rule IV.—Any forest produce in transit within or passing out of the Sunderbuns Protected Forests, and any such produce found in any water-channel skirting or leading from the said forests, when there is reason to believe that anything is payable to the Government in respect of such produce, may be stopped and examined by any forest or police officer.

Rule V.—The clearing and breaking up of land for cultivation and other purposes within the Sunderbuns Protected Forests is prohibited, except in accordance with such rules as the local Government may from time to time issue with the previous sanction of the Governor-General in Council.

Rule VI.—Any person who desires to transport any forest produce through the Sunderbuns Protected Forests, or through any part of them, or along any of the water-channels intersecting or skirting them, shall be bound to take out a pass at any of the revenue stations, a list of which will be published from time to time in the *Calcutta Gazette*, and he shall further be bound to produce such pass when called upon to do so by any forest or police officer, and to return such pass at any one of the said revenue stations on passing out of the boundary of the Protected Forests. The fee, if any, payable for such passes will from time to time be fixed by the Conservator of Forests and notified in the *Calcutta Gazette.*

The following is a list of the revenue stations referred to in Rules 3 and 6 of the above rules :—

1. Lower Bhola.
2. Upper Bhola.
3. Pussur.
4. Khulna.
5. Bhudder.
6. Shupsah.
7. Koyrah.
8. Cobaduk.
9. Isreepore (Eshamuttee).
10. Bussuntpore.
11. Roymangal.
12. Rampura.
13. Mutlah.
14. Bogee.
15. Saterbog.
16. Mooree Gunga.

ANNUAL FORM No. 45.—[*Prescribed*]

FOREST DEPARTMENT, BENGAL.

Area of Reserved Forests, 1878-79.

Division or Range.	Name of Forest and Civil District.	Area on 1st April 1878. Square miles.	Area on 1st April 1878. Acres.	Added during the year. Square miles.	Added during the year. Acres.	Excluded or transferred to other heads. Square miles.	Excluded or transferred to other heads. Acres.	Total on 31st March 1879. Square miles.	Total on 31st March 1879. Acres.	Total of each division. Square miles.	Total of each division. Acres.	Number and date of Notification of additions and transfers, &c.	Remarks.
	Darjeeling District.[1]												
Darjeeling.	Goompahar Range ...	7	4,438	5	3,000	.....	.....	12	7,438	.....	.....	All the forests were notified under section 34 of the Indian Forest Act in notification dated 23rd January 1879.	
	Tukdah ,, ...	10	6,792	6½	4,075	½	400	16	10,467				
	Rungbul ,, ...	9	5,687	.....	97	.....	97	9	5,687				
										37	23,592		
Teesta.	West of Teesta. Badamtam ...	1	569	.....	.....	.....	.....	1	569				
	Sumbong ...	2½	1,741	.....	.....	.....	.....	2½	1,741				
	Pashok ...	1½	1,011	.....	.....	.....	.....	1½	1,011				
	Mangwa ...	1½	995	.....	.....	.....	.....	1½	995				
	Reyang ...	.....	76	2	1,189	.....	.....	2	1,265				
	Geeljong ...	.....	.....	3	1,697	.....	.....	3	1,697				
	Seem Jhora ...	1½	342	.....	.....	.....	.....	½	342				
	East of Teesta. Nazzeok ...							3	1,786				
	Tunang ...							1½	966				
	Rinkinpung ...							6½	4,170				
	Kalimpung ...							5	3,180				
	Dumsong ...	50	31,746	4	2,649	.....	.....	23	15,840	.....	.....	.....	Addition made as explained in paragraph 66 of Report for 1877-78.
	Payong ...							1	470				
	Maydong ...							4½	2,900				
	Khempung ...							5½	3,580				
	Loolagaon ...							4	2,703				
										66	42,015		
Kurseong.	Dhobijhora ...	.....	.....	1	409	.....	.....	1	409				
	Sibakhola ...	.....	.....	.....	.....	.....	.....	1½	403				
	Merig ...	.....	.....	.....	.....	.....	.....	3	1,934				
	Munjoos ...	.....	.....	.....	.....	.....	.....	2	1,112				
	Khyrbani ...	.....	.....	.....	17	.....	12	3	1,984				
	Koohain ...	.....	.....	.....	.....	.....	.....	1	514				
	Mechi ...	.....	.....	.....	.....	.....	.....	2	1,477				
	Soorjbur ...	.....	.....	.....	.....	.....	.....	.....	52				
	Munjha river ...	.....	.....	.....	.....	.....	228	.....	.....				
	Lohagarhi ...	.....	.....	.....	.....	.....	.....	1	584				
	Munjha ...	.....	.....	.....	17	.....	21*	2½	1,541	.....	.....	.....	*9. A location, Indian Terai Tea Company.
	Balasun ...	.....	.....	.....	7	.....	16	3	1,718				2. A location, new Terai Tea Company.
	Dulkajhar ...	.....	.....	.....	78	.....	.....	8	5,138				10. An exchange.
	Ramunpokri ...	.....	.....	.....	.....	.....	.....	2	1,372				6. A location, excluded.
	Rakti ...	.....	.....	.....	.....	.....	.....	.....	195				
	Lama Gumba ...	78	49,533	.....	.....	.....	6	.....	488	.....	.....	.....	
	Kooklong ...	.....	.....	.....	.....	.....	.....	1½	1,011				
	Poondig ...	.....	.....	.....	.....	.....	.....	3	2,044				
	Shukna ...	.....	.....	.....	.....	.....	.....	1½	1,050				
	Latpanchor ...	.....	.....	.....	.....	.....	.....	8½	5,493				
	Goroomara ...	.....	.....	.....	.....	.....	.....	14	8,780				
	Sitong-Teesta ...	.....	.....	20	12,900	.....	.....	20	12,900				
	Rangamattia ...	.....	.....	.....	30	.....	.....	2	1,177				
	Rungdong ...	.....	.....	.....	.....	.....	.....	1	700				
	Noonamattia ...	.....	.....	.....	.....	.....	.....	1	428				
	Moorgaon ...	.....	.....	.....	.....	.....	.....	4	2,375				
	Mahanadi ...	.....	.....	.....	.....	.....	.....	.....	114				
	Champeasari ...	.....	.....	.....	87	.....	.....	5	3,063				
	Sivoke ...	.....	.....	.....	.....	.....	.....	7½	4,734				
										99	62,885		
	Julpigoree District.												
Julpigoree.	Apalchand ...	26	16,640	.....	.....	.....	.....	26	16,640				
	Toodu ...	73	46,720	.....	.....	.....	.....	73	46,720				
	Dainah ...	24	15,360	.....	.....	.....	.....	24	15,360				
	Muraghat ...	17	10,880	.....	.....	.....	.....	17	10,880				
	Dulgaon ...	2½	1,600	.....	.....	½	225	2	1,375				
	Dumchi ...	3	1,920	.....	.....	.....	.....	3	1,920				
	Khairbari ...	6½	4,160	.....	.....	3½	2,385	3	1,775				
										148	94,670		
Buxa.	Borojhar ...	55	35,200	.....	.....	.....	.....	55	35,200				
	Buxa ...	144	92,160	.....	.....	.....	.....	144	92,160				
	Raidak ...	20	12,800	.....	.....	.....	.....	20	12,800				
	Dhampara ...	11	7,040	.....	.....	.....	.....	11	7,040				
	Bholka ...	20	12,800	.....	.....	.....	.....	20	12,800				
										250	160,000		
	Lohardugga District.												
Palamow.	Kechki ...	1	640	.....	.....	.....	.....	1	640				
	Betlah ...	11	7,040	.....	.....	.....	.....	11	7,040				
	Saidope ...	43	27,520	.....	.....	.....	.....	43	27,520				
	Kumandi ...	14	8,960	.....	.....	.....	.....	14	8,960				
	Ramundag ...	17	10,880	.....	.....	.....	.....	17	10,880				
	Barasand ...	52	33,280	.....	.....	.....	.....	52	33,280				
	Seema ...	41	26,240	.....	.....	.....	.....	41	26,240				
	Shahabad District.												
	Rhotas ...	20	12,800	.....	.....	.....	.....	20	12,800				
	Rehal ...	11	7,040	.....	.....	.....	.....	11	7,040				
	Bans-i-Koh ...	6	3,840	.....	.....	.....	.....	6	3,840				
										216	138,240		
	24-Pergunnahs District.												
Sunderbuns.	Satkhira ...	382	244,480	.....	.....	.....	.....	382	244,480				
	Jessore District.												
	Khulna ...	699	447,360	.....	.....	.....	.....	699	447,360				
	Bagirhat ...	500	320,000	.....	.....	.....	.....	500	320,000				
										1,581	1,011,840		
	Chittagong Hill Tracts.												
Chittagong.	Maiani ...	339	216,960	.....	.....	.....	.....	339	216,960				
	Sitapahar ...	8	5,120	.....	.....	.....	.....	8	5,120				
	Matamori ...	223	142,720	.....	.....	.....	.....	223	142,720				
										570	364,800		

Annual Form No. 45—*continued.*

Area of Reserved Forests, 1878-79—continued.

Division or Range.	Name of Forest and Civil District.	Area on 1st April 1878.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March 1879.		Total of each division.		Number and date of Notification of additions and transfers, &c.	Remarks.
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
	Singbhoom District.												
Hazaribagh.	Saranda Pir	400	256,000	.....	.....	400	256,000	.....	.....	.....	.....		
	Hazaribagh District.												
	Koderma	60	38,400	.....	.....	60	38,400	.....	.....	.....	.....	.....	Now reduced to 31 square miles=19,729 acres.
	Sonthal Pergunnahs District.												
	Damin-i-Koh	40	25,600	.....	.....	40	25,600	.....	.....	.....	.....		
	Total ...	3,430	2,195,090	41½	26,342	504½	323,390	.....	.....	2,967	1,898,042		

Annual Form No. 45.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Protected Forests, 1878-79.

Division or Range.	Name of Forest and Civil District or Territory.	Area on 1st April 1878.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March 1879.		Total of each division.		Number and date of Notification of additions and transfers, &c.	Remarks.
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
Sunderbuns.	*24-Pergunnahs District.*												
	Bussirhat	.....	.....	1,000	640,000	.....	.....	1,000	640,000	.....	.....	Notification of 7th December 1878.	
	Barripore	.....	.....	325	208,000	.....	.....	325	208,000				
	Diamond Harbour ...	.....	.....	526	336,640	.....	.....	526	336,640				
	Lot 165	.....	.....	24	15,300	.....	.....	24	15,300				
	Jessore District.									.....	.....	Notification of 24th February 1879.	
	Khulna ... ... (Lots 216, 224, 225) ...	.....	.....	50	32,000	.....	.....	50	32,000	1,925	1,231,940		
	Julpigoree District.												
Julpigoree	Muraghat	8	5,120	.....	.....	8	5,120	.....	.....	.....	.....	Not made "protected forest" under the Forest Act, though still under management for the collection of revenue, and called "unreserved."	
	Chittagong Hill Tracts.												
Chittagong	Hill Tracts	5,100	3,264,000	.....	.....	5,100	3,264,000	.....	.....				
	Total ...	5,108	3,269,120	1,925	1,231,940	5,108	3,269,120	1,925	1,231,940	1,925	1,231,940		

Annual Form No. 46.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Plantations, 1878-79.

Division.	Name of Plantation.	On 1st April 1878.		During 1878-79.		On 31st March 1879.		Remarks.
		Area.	Total cost.	Area added.	Cost.	Total area.	Total cost.	
		Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Darjeeling ...	Rungbúl	144	14,020 9 0	103	2,598 12 10	247	16,619 5 10	
	Rungirum	5	948 0 0	5	535 6 3	10	1,483 6 3	
	Dooteria	.....	.....	2	633 12 6	2	633 12 6	Nurseries.
	Poobong	.....	.....	2	328 0 3	2	328 0 3	Ditto.
Kurseong ...	Dhobijhora	42	32 0 0	.....	.....	13	32 0 0	Area when measured proved to be only 13 acres.
	Bamunpokri	215	28,117 12 10	.....	3,127 0 9	215	31,244 13 7	
Julpigoree ...	Fallacotta	3	229 12 11	.....	.....	3	229 12 11	
Buxa	South boundary	36	1,139 0 0	15	289 13 0	51	1,428 13 0	Of this two acres nurseries.
Sunderbans ...	Baobab	1	90 14 9	.....	81 1 0	1	171 15 9	Bamboo plantation omitted.
Chittagong ...	Sitapahar	185	19,366 2 11	80	5,558 14 0	265	24,925 0 11	
	Pahartalli	5	324 14 6	...	.....	5	324 14 6	
	Total ...	636	64,637 3 11	207	13,152 12 7	843	77,790 0 6	

Annual Form No. 47.

FOREST DEPARTMENT, BENGAL.

Area of Forest Tracts protected from Fire during the dry season of 1878-79.

Division.	Forest Tracts.	Up to 15th June 1879.		During dry season of 1878-79.				Total cost up to 1st May 1879.	Year when protection commenced.	Remarks.
		Area actually protected.	Total cost.	Area attempted to be protected.	Failures.	Area actually protected.	Amount expended.			
		Acres.	Rs. A. P.	Acres.	Acres.	Acres.	Rs. A. P.	Rs. A. P.		
Darjeeling ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Several small fires occurred and a small sum was spent in putting out, but no regular protection works were made.
Kurseong ...	Sivoke	.....	585 14 3	1,554	1,554	.....	8 0 0	593 14 3	1876-77	
	Bamunpokri ...	1,378	2,138 13 0	1,373	120	1,253	696 14 9	2,835 11 0	1876-77	
	Dulka Jhar	.....	.....	3,565	3,565	.....	21 12 0	21 12 0	1878-79	
Julpigoree ...	Apalchand	.....	.....	16,640	12,480	4,160	.....	.....	.....	Protection attempted with the regular establishment.
	Tondu	.....	.....	46,720	15,570	31,150	.....	.....	.....	
	Muraghat	5,000	260 6 0	10,900	5,450	5,450	148 8 0	408 14 0	1872-73	
Buxa ...	Buxa	55,660	1,082 8 3	91,100	37,120	53,980	1,396 5 6	2,478 13 9	1876-77	
	Bholka	11,800	141 8 0	12,800	17,040	5,760	190 10 0	332 2 0	1877-78	
Sunderbans ...	Baobab plantation ...	1	.....	1	.....	1	.....	.....	.....	Expenditure under plantation.
Chittagong ...	Sitapahar	5,000	.....	5,000	.....	5,000	.....	.....	.....	
	Total ...	78,834	4,209 1 6	189,658	82,899	106,754	2,462 2 3	6,671 3 9	.....	

Annual Form No. 48.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL,

Prosecutions for breaches of Forests Rules, 1878-79.

Forest Division and Civil District.	Injury to forests by fire.		Unauthorized felling or appropriation of wood and minor forest produce.		Grazing without permission or in tracts in which grazing is prohibited		Other offences.		Total				Remarks.
									Prosecutions.		Convictions.		
	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
Darjeeling District—													
Darjeeling Divison ...	...	...	6	7	...	...	...	...	6	7	6	7	
Teesta " ...	...	...	1	1	...	...	...	...	1	1	1	1	
Kurseong " ...	...	...	2	5	...	...	1	2	3	7	3	7	
Julpigoree District—													
Julpigoree Division ...	2	5	2	4	...	...	...	...	4	9	2	4	One case dismissed. One pending, since convicted.
Buxa " ...	3	45	...	...	...	...	...	...	3	45	3	45	
Rungpore District—													
Buxa Division ...	...	...	...	...	...	...	1	1	1	1	1	1	At Kawnia depôt.
Lohardugga District—													
Palamow Division ...	...	...	2	2	...	...	...	...	2	2	2	2	
24-Pergunnahs District—													
Sunderbuns Division ...	...	...	12	34	...	...	1	1	13	35	8	24	Of these, four cases were pending from last year; one case is still pending.
Jessore District—													
Sunderbuns Division ...	...	...	34	123	...	...	2	3	36	126	11	57	Eighteen cases involving 18 persons were pending from last year; one case not found; one case discharged; and three cases involving 22 persons are still pending.
Chittagong Hill Tracts District—													
Chittagong Hill Tracts Division.	...	...	1	5	...	...	4	9	5	14	1	6	Two cases still pending.
Total ...	5	50	60	181	...	...	9	16	74	247	38	154	

ANNUAL FORM

FOREST DEPART

Summary of Revenue of

BUDGET HEADS.	DIRECTION.		DARJEELING DIVISION.		TEESTA DIVISION.		KURSEONG DIVISION.		JULPIGOREE DIVISION.	
	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.
RECEIPTS.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.
I.—Timber and other produce removed from the forests by Government agency—										
a. Timber	.....	.....	1,000	104 4 0	5,000	1,177 0 0	25,000	20,610 3 0	15,000	2,613 12 8
b. Firewood and charcoal	.....	.....	41,500	49,615 10 10	.....	.....	500	.....	.....	15 0 0
c. Bamboos	.....	.....	.....	.....	.....	.....	.....	8 6 4	.....	.....
d. Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Grass and other minor produce.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
II.—Timber and other produce removed from the forests by consumers or purchasers—										
a. Timber	.....	.....	6,000	12,062 8 0	1,000	1,428 0 0	12,000	4,473 0 0	1,000	3,782 0 0
b. Firewood and charcoal	.....	.....	500	315 0 0	.....	45 0 0	2,000	4,914 4 9	300	.....
c. Bamboos	.....	.....	200	402 8 0	100	146 11 6	500	663 15 0	.....	2 0 0
d. Grazing and fodder grass.	.....	.....	1,500	3,424 10 9	600	67 8 6	1,000	2,083 1 0	200	490 14 0
e. Other minor produce ...	.....	.....	100	48 0 0	50	60 11 0	500	900 5 3	.....	66 0 0
III.—Confiscated, drift, and waif wood.	.....	.....	.....	.....	.....	.....	200	218 4 6	300	968 2 6
IV.—Revenue from forests not managed by Government—										
a. Duty on foreign timber and other forest produce.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Revenue from shared and private forests.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
V.—Miscellaneous—										
a. Fines and forfeitures ...	.....	.....	.....	313 0 0	.....	.....	.....	49 4 6	.....	.....
b. Refunds	.....	0 8 0	.....	.....	.....	.....	.....	.....	.....	189 5 0
c. Other sources	.....	20 0 0	200	266 0 0	250	161 0 0	500	1,323 0 0	200	138 0 0
Total Receipts ...	.....	20 8 0	51,000	66,471 9 7	7,000	3,085 15 0	42,000	35,243 11 10	17,000	8,286 2 2

No. 49.—[*Prescribed.*]

MENT, BENGAL.

the different Divisions, 1878-79.

Buxa Division.		Palamow Division.		Sunderbuns Division.		Chittagong Division.		Chittagong Hill Tracts Division.		Total.	
Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.
Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.
1,16,000	91,298 6 2	.....	.....	.....	.....	.....	.....	.....	.....	1,62,000	1,15,803 9 10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42,000	49,030 10 10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 6 4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2,400	3,730 8 0	300	12 8 0	25,300	54,957 5 6	12,000	545 6 3	.....	7,500 10 9	60,000	88,610 14 6
100	82 5 0	100	0 14 0	50,000	81,640 3 6	.....	.....	.....	.....	53,000	80,897 11 3
100	18 9 0	600	6 4 10	.....	.....	31,000	3,659 15 1	.....	13,449 0 4	32,500	18,388 15 9
200	242 11 6	1,000	241 8 9	.....	.....	.....	.....	.....	.....	4,500	6,556 6 6
50	23 14 0	500	256 4 6	40,000	35,392 8 6	16,000	4,007 4 6	.....	3,348 5 6	57,000	44,103 5 3
.....	.....	.....	.....	500	485 2 6	.....	.....	.....	.....	1,000	1,691 9 6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	46 14 0	.....	.....	50	15 8 0	.....	.....	.....	.....	100	424 10 0
.....	.....	.....	.....	50	1 4 0	1,500	571 6 7	.....	.....	1,550	702 7 7
100	261 11 9	500	239 11 2	100	54 5 2	500	88 8 0	.....	601 0 0	2,850	3,148 4 1
1,19,000	95,713 15 5	3,000	757 3 3	1,16,000	1,72,546 5 2	61,000	8,912 8 5	.....	24,989 0 7	4,16,000	4,16,026 15 5

ANNUAL FORM NO.

FOREST DEPART

Summary of Expenditure of the

BUDGET HEADS.	DIRECTION.		DARJEELING DIVISION.		TEESTA DIVISION.		KURSEONG DIVISION.		JULPIGOREE DIVISION.	
	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.
A.—Conservancy and Works.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.
I.—Timber and other produce removed from the forests by Government agency—										
a. Timber	.....	.....	500	35 14 0	2,500	782 6 0	14,000	13,773 10 10	2,000	1,762 8 7
b. Firewood and charcoal	.....	.....	31,000	35,948 9 9	.....	.....	.....	.....	.....	1 13 6
c. Bamboos	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
d. Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Grass and other minor produce	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
II.—Timber and other produce removed from the forests by consumers or purchasers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
III.—Confiscated, drift, and waif wood...	.....	.....	.....	.....	.....	.....	.....	.....	340	418 5 7
IV.—Revenue from forests not managed by Government—										
a. Duty on foreign timber and other forest produce	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Revenue from shared and private forests	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
V.—Rent of leased forests, and payments to shareholders in forests managed by Government	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
VI.—Live-stock, Stores, Tools, and Plant—										
a. Purchase of cattle	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Feed and keep of cattle ...	.....	.....	.....	.....	45	43 9 6	1,200	1,961 5 2	2,000	1,776 15 5
c. Stores, tools, and plant... ...	50	11 15 0	300	290 9 3	50	134 10 0	190	188 3 9	50	148 13 0
VII.—Communications and buildings—										
a. Roads and bridges	.....	.....	450	415 8 8	350	19 15 6	1,400	1,070 8 7	.....	.....
b. Buildings	.....	.....	3,150	2,197 4 6	2,500	551 5 3	1,350	1,310 9 3	350	305 7 10
c. Other works	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
VIII.—Demarcation, improvement, and extension of forests—										
a. Demarcation	.....	.....	400	389 15 0	1,200	3,239 14 6	350	331 10 10	900	857 14 6
b. Compensation for land and rights	10	0 4 0	.....	.....	490	143 0 0	70,000	63,402 5 0	.....	.....
c. Surveys and working plans ...	300	.....	50	.....	50	.....	50	.....	50	.....
d. Plantations	.....	.....	2,400	4,095 15 10	.....	.....	3,140	3,127 0 9	15	12 8 0
e. Protection from fire	.....	.....	10	7 1 0	.....	.....	990	689 7 5	200	148 8 0
f. Other works	.....	.....	10	1 6 6	90	.....	300	284 15 0	100	0 8 0
IX.—Miscellaneous—										
a. Refunds	10	10 0 0	10	8 12 0	.....	.....	.....	.....	.....	.....
b. Law charges	.....	.....	.....	.....	.....	.....	.....	.....	5	0 8 0
c. Other charges	.....	.....	70	66 4 0	10	0 8 0	1,090	4,906 12 9	.....	1,378 1 6
Total A.—Conservancy and works ...	370	22 3 0	38,350	43,457 4 1	7,285	4,915 4 9	94,060	91,145 9 4	6,010	6,808 15 11
B.—Establishments.										
I.—Salaries—										
a. Conservators	14,400	14,135 7 8	.....	.....	.....	.....	.....	.....	.....	.....
b. Superior officers	4,500	4,468 4 6	4,550	4,516 2 0	5,500	5,461 4 8	4,200	4,200 0 0	3,800	3,790 5 1
c. Subordinate forest and depôt establishments	145	.....	2,615	2,612 8 11	1,360	1,357 12 10	2,940	2,935 12 3	2,212	2,166 5 4
e. Deputation and special allowances	3,850	3,849 9 2	721	720 13 8	561	561 0 0	762	761 0 5	756	756 0 0
II.—Travelling allowances—										
a. Conservators	1,500	827 10 0	.....	.....	.....	.....	.....	.....	.....	.....
b. Superior officers	160	158 10 0	658	652 12 3	1,000	987 8 0	1,505	1,591 0 0	1,100	1,096 5 0
c. Subordinate forest and depôt establishments	.....	.....	190	167 4 11	105	102 14 10	150	124 4 2	50	32 7 8
d. Office establishments	40	37 6 0	50	16 4 2	90	87 8 6	60	51 7 9	50	24 15 3
III.—Contingencies—										
a. Stationery	20	7 1 0	10	1 8 0	10	1 8 0	.....	.....	10	2 4 0
b. Carriage of tents and records...	80	6 4 0	100	37 1 0	120	117 8 7	40	25 3 6	50	0 8 0
c. Pay of police guards	.....	575 0 0	.....	295 0 0	.....	.....	.....	226 7 3	.....	6 4 0
d. Sundries	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Official postage	220	218 5 0	50	14 0 0	25	9 6 0	50	40 12 0	50	35 10 0
f. Sundries	1,050	1,058 3 10	370	375 13 5	145	144 7 3	227	226 5 11	184	183 14 8
Total B.—Establishments ...	25,974	25,341 13 2	9,320	9,409 4 4	8,916	8,830 9 7	10,024	10,182 5 3	8,262	8,094 15 0
GRAND TOTAL OF EXPENDITURE ...	26,344	25,364 0 2	47,670	52,866 8 5	16,201	13,745 14 4	1,04,084	1,01,327 14 7	14,272	14,903 14 11

49.—[*Prescribed.*]

MENT, BENGAL.

different Divisions, 1878-79.

Buxa Division.		Palamow Division.		Sunderbuns Division.		Chittagong Division.		Chittagong Hill Tracts Division.		Hazareebagh Division.		Total.	
Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.	Budget estimate.	Actual.
Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs. A. P.
64,000	31,272 7 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	83,000	47,626 14 11
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31,000	35,050 7 3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	1 2 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 2 0
.....	.....	.....	.....	12,600	12,618 10 10	.....	81 8 9	.....	24 1 9	.....	.....	12,600	12,724 5 4
.....	.....	.....	.....	60	56 3 11	.....	.....	.....	.....	.....	.....	400	474 9 6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2,955	2,931 7 0	300	547 6 8	.....	.....	.....	.....	.....	.....	.....	.....	6,500	7,200 11 9
200	249 4 0	.....	.....	1,000	3,243 7 5	60	41 13 3	.....	.....	.....	69 10 0	2,500	4,375 5 8
1,100	888 12 0	.....	.....	.....	.....	300	3 8 0	.....	.....	.....	.....	3,600	2,293 4 4
600	551 13 9	200	6 10 0	400	274 7 0	800	707 12 7	50	50 0 0	.....	.....	9,400	5,955 6 2
.....	.....	.....	.....	.....	8 13 0	.....	.....	.....	.....	.....	.....	.....	8 13 0
1,150	1,132 12 1	50	48 8 6	.....	.....	550	522 0 6	.....	.....	400	395 10 11	5,000	6,918 6 10
200	164 12 0	500	.....	.....	.....	.....	.....	.....	.....	.....	.....	71,200	68,800 5 0
50	.....	50	.....	.....	.....	100	29 1 3	.....	.....	.....	.....	700	29 1 3
300	289 13 0	.....	.....	85	81 1 0	5,560	5,558 14 0	.....	.....	.....	.....	11,500	13,165 4 7
2,000	1,549 12 9	600	.....	.....	.....	200	40 2 0	.....	.....	.....	.....	4,000	2,452 15 2
500	224 5 9	100	.....	.....	.....	200	.....	.....	.....	.....	.....	1,300	511 3 3
.....	.....	.....	.....	380	233 2 0	.....	.....	.....	.....	.....	.....	400	251 14 0
.....	.....	.....	.....	295	294 4 0	.....	.....	.....	.....	.....	.....	300	294 12 0
40	21 7 6	140	130 2 0	60	31 12 6	190	180 2 6	.....	.....	.....	.....	1,600	6,715 2 9
73,095	39,276 11 4	1,940	783 13 2	15,480	10,841 13 8	7,960	7,173 14 10	50	74 1 9	400	465 4 11	2,45,000	2,10,915 0 9
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14,400	14,135 7 8
4,550	4,550 0 0	9,100	9,100 0 0	4,200	6,612 14 5	6,600	6,600 0 0	.....	.....	300	1,400 0 0	47,300	50,698 14 8
4,736	4,735 0 8	3,525	3,522 11 10	9,886	9,885 10 11	4,585	3,802 10 1	4,564	4,563 5 9	.....	.....	33,568	35,581 14 7
933	932 15 0	540	539 11 7	1,527	1,526 5 3	1,013	1,012 5 6	557	616 0 0	12	11 10 9	11,232	11,287 7 4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,500	827 10 0
842	1,136 11 0	740	740 0 0	240	235 12 0	1,355	1,354 8 1	.....	.....	210	210 0 0	7,900	8,103 2 4
405	400 0 9	50	.....	50	17 13 8	85	23 7 7	15	13 12 3	.....	.....	1,100	868 5 7
160	157 10 8	100	60 0 6	50	22 7 8	100	90 1 4	.....	.....	.....	.....	700	576 5 0
10	3 0 0	10	6 7 6	10	3 0 0	5	0 8 0	5	2 2 3	.....	.....	90	27 6 9
50	13 4 0	190	185 3 3	10	9 0 0	50	24 9 9	.....	.....	.....	.....	690	418 9 4
.....	.....	.....	180 0 0	.....	702 14 8	.....	80 0 0	.....	.....	.....	.....	.....	2,065 9 11
.....	.....	.....	.....	200	20 0 0	.....	.....	.....	.....	.....	.....	300	20 0 0
160	98 2 6	25	16 3 6	140	135 13 6	55	27 8 6	5	5 0 0	.....	.....	700	600 13 0
120	85 10 0	150	149 11 0	220	219 4 9	64	39 15 6	5	5 0 0	.....	.....	2,020	2,488 6 4
11,976	12,112 6 7	14,430	14,506 1 2	16,533	19,391 0 10	13,892	13,004 9 7	5,151	5,205 4 3	522	1,621 10 9	1,25,000	1,27,760 0 6
85,071	51,389 1 11	16,370	15,289 14 4	32,013	36,232 14 6	21,852	20,238 8 5	5,201	5,279 6 0	922	2,086 15 8	3,70,000	3,38,675 1 3

Annual Form No. 50.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL,

Annual Account Current for the year 1878-79.

Dr.

	Rs. A. P.	Rs. A. P.
To Cash in hand on the 1st April 1878 ...	1,054 9 8	1,054 9 8
„ Revenue received during the year ...	4,16,026 15 5	4,16,026 15 5
„ Remittances from State treasuries ...	3,39,253 12 10	3,39,253 12 10
„ Government of India—remittances by transfers from Mathematical Instrument Department	724 11 6	724 11 6
„ Remittances by transfer from Military Department	213 3 2	213 3 2
„ Government of India—Fund Deductions, Uncovenanted Service Family Pension Fund	1,807 5 0	1,807 5 0
„ Advances recoverable	1,07,160 6 11	1,07,160 6 11
„ Inter-divisional transfers	6,357 0 10	6,357 0 10
„ Suspense account	6,058 9 7	6,058 9 7
„ Provincial Services—Police	8 0 0	8 0 0
„ Amount deducted from revenue in payment of the Hill Tipperah Rajah's share of the Fenny toll collections for 1877-78	5,938 0 0	5,938 0 0
„ Deposits repaid	10 0 0	10 0 0
Total		8,84,612 10 11

Cr.

	Rs. A. P.	Rs. A. P.	R. A. P.
By Expenditure during the year... { A. 2,10,915 0 9 / B. 1,27,760 0 6 }		3,38,675 1 3	3,38,675 1 3
By Remittances to State treasuries ...		3,20,694 11 6	3,20,694 11 6
„ Remittances to Public Works Department, Civil Works ...		28,358 15 4	
„ Remittances to Public Works Department, Military Works ...		1,162 8 0	
„ Remittances to Public Works Department, Northern Bengal State Railway		55,177 12 6	
„ Remittances to Public Works Department, Road Cess		3,205 12 9	87,905 0 7
„ Remittances to Military Department, Commissariat		8,859 1 11	8,859 1 11
„ Remittances to Mathematical Instrument Department		20 0 0	20 0 0
„ Remittances to Jail Department ...		806 4 0	806 4 0
„ „ „ Punjab Government		7 0 0	7 0 0
„ „ „ Madras Government Famine Relief		53 3 7	53 3 7
„ Deposits repaid		19 11 4	19 11 4
„ Suspense		6,218 4 8	6,218 4 8
„ Inter-divisional transfers		6,357 0 10	6,357 0 10
„ Advances recoverable		1,03,223 13 10	1,03,223 13 10
„ Transfer charges in reduction of realization of revenue		5,938 0 0	5,938 0 0
„ Balance in hand at close of the year		5,835 5 5	5,835 5 5
Total			8,84,612 10 11

Annual Form No. 51.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Outstandings and Liabilities on account of Contractors and Disbursers, 1878-79.

Division.	Department Debtor.			Department Creditor.			Balance due.	
	At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (Outstandings).	By Department (Liabilities).
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	.....	1,609 4 11	1,609 4 11	31 0 2	1,585 6 7	1,616 6 9	7 1 10	.....
Darjeeling	.....	9,149 2 5	9,149 2 5	(a) 52 3 8	9,427 11 10	9,479 15 6	330 13 1	(d) 200 0 0
Kurseong	5 0 0 / (c) 68 7 3	6,827 11 2	6,832 11 2 / 68 7 3	(a) 5,242 1 6	2,242 1 4	7,484 2 10	651 7 8	(d) 68 7 3
Teesta	.....	5,481 7 5	5,481 7 5	3 4 5	6,906 15 0	6,910 3 5	1,428 12 0	
Julpigoree	.....	5,910 0 9	5,910 0 9	(a) 1,912 10 10	4,548 0 8	6,400 11 6	550 10 9	
Buxa	.....	43,187 11 3	43,187 11 3	(a) 707 5 10	45,927 4 10	46,634 10 8	3,506 15 5	
Palamow	.....	3,760 13 6	3,760 13 6	794 15 5	3,126 3 6	3,921 2 11	160 5 5	
Sunderbuns	.....	20,381 8 5	20,381 8 5	1,215 4 5	20,062 0 7	21,277 5 0	895 12 7	
Chittagong	.....	10,852 11 1	10,852 11 1	1,717 1 7	9,398 1 6	11,115 3 1	262 8 0	
Chittagong Hill Tracts ...	.....	.....	.....	.....	.....	.....	.....	
Dacca (late)	.....	.....	.....	12 0 0	.....	12 0 0	12 0 0	
Total ...	5 0 0 / 68 7 3	1,07,160 6 11	1,07,165 6 11 / 68 7 3	(b) 11,747 15 10	1,03,223 13 10	1,14,971 13 8	7,806 6 9	268 7 3

(*a*). The differences between the divisional outstandings shown in the form for last year and brought forward in the present returns are owing to transfers among the divisions of individual accounts, which have been effected in consultation with the Comptroller-General's office.

	Rs.	A.	P.
(*b*). Outstanding at close of 1877-78 as shown in that year's form No. 51	11,702	15	10
Department creditor at commencement of this year	11,747	15	10
	45	0	0

This is owing to Rs. 50 brought forward in excess in form No. 51 of 1877-78 having been deducted from this return, less Rs. 5 excess recovered in 1877-78 and shown as a liability.

(*c*). This item of Rs. 68-7-3 was erroneously omitted from form No. 51 for 1877-78, and an item of Rs. 2,750-10-1 was erroneously shown in that return under the Julpigoree and Buxa division bracketted, as a liability at close of the year.

(*d*). Amounts less paid to contractor on bills for work done as security for the continuance of the work, to be paid which it is finished and to be charged to a budget head.

ANNUAL FORM No. 52.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Outstandings on account of Revenue, 1878-79.

DIVISION.	PARTICULARS.	Outstandings at commencement of year.	Value of sales and other revenue during year.	Total.	Amount realized during year.	Balance due to the Department at end of year.	REMARKS.
		RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
Direction	.....	.....	20 8 0	20 8 0	20 8 0	.....	
Darjeeling Division ...	Scantlings, firewood and charcoal.	697 0 9	66,915 0 1	67,612 0 10	66,471 9 7	1,140 7 3	On account firewood and charcoal.
Teesta „ ...	Logs, sleepers, &c.	.....	3,278 6 0	3,278 6 0	3,085 15 0	192 7 0	
Kurseong „ ...	Ditto ...	195 0 0	52,783 0 10	52,978 0 10	35,243 11 10	17,734 5 0	From Executive Engineer, Mahanadi Division, Northern Bengal State Railway, Rs. 17,542-5. From Indian Museum, Calcutta, for 18 gambhar logs, Rs. 192.
Julpigoree „ ...	Logs, &c. ...	6 0 0 * 352 0 0	8,438 6 8	8,444 6 8 * 352 0 0	8,286 2 2 * 352 0 0	158 4 6	From District Engineer, Julpigoree Division.
Buxa „ ...	Logs, sleepers, &c.	..... * 36 0 0	95,713 15 5	95,713 15 5 * 36 0 0	95,713 15 5 * 36 0 0	.....	
Palamow „ ...	Lac, mowah cultivation, &c.	64 8 7	723 5 8	787 14 3	757 3 3	30 11 0	
Sunderbuns „ ...	Timber, firewood, &c.	.....	1,72,546 5 2	1,72,546 5 2	1,72,546 5 2	.....	
Chittagong „ ...	Timber, bamboos, &c.	.....	8,912 8 5	8,912 8 5	8,912 8 5	.....	
Chittagong Hill Tracts	.....	.....	24,989 0 7	24,989 0 7	24,989 0 7	.....	
	Total ...	902 9 4	4,34,320 8 10	4,35,223 2 2	4,16,026 15 5	19,258 2 9	
		* 388 0 0	.....	* 388 0 0	* 388 0 0	.....	

* Written off under Bengal Government orders No. 366—36F, dated the 10th February 1879.

ANNUAL FORM No. 53.

FOREST DEPARTMENT, BENGAL.

Statement of Trees felled during the year 1878-79.

DIVISION.	Forest Range.	Locality.	Description of trees.	On hand from previous year.	Felled during current year.	Total.	Disposed of during current year.		Closing balance.
							How disposed of.		
				No.	No.	No.		No.	No.
Darjeeling ...	Rungbúl	Rungbúl block	Booke	.....	38	38	Converted into firewood	38	.....
			Katus	.....	52	52		52	.....
			Phalat	.....	35	35		35	.....
			Lali	.....	66	66		66	.....
			Kaula	.....	36	36		36	.....
			Pyla	.....	36	36		36	.....
			Sissu	.....	2	2		2	.....
			Kabashi	.....	13	13		13	.....
			Bhudrassi	.....	10	10		10	.....
			Kharani	.....	4	4		4	.....
			Dabdabia	.....	2	2		2	.....
			Myah	.....	2	2		2	.....
		Dooteria block	Booke	.....	158	158		158	.....
			Katus	.....	73	73		73	.....
			Phalat	.....	70	70		70	.....
			Lali	.....	147	147		147	.....
			Kaula	.....	52	52		52	.....
			Pyla	.....	245	245		245	.....
			Sissu	.....	14	14		14	.....
			Kabashi	.....	106	106		106	.....
			Bhudrassi	.....	22	22		22	.....
			Kharani	.....	19	19		19	.....
			Dabdabia	.....	48	48		48	.....
			Myah	.....	30	30		30	.....
			Arupattia	.....	1	1		1	.....
			Kanukpa	.....	5	5		5	.....
			Thala	.....	1	1		1	.....
			Jingni	.....	1	1		1	.....
			Kalikat	.....	1	1		1	.....
			Doodoola	.....	13	13		13	.....
	Gumpahar ...	Poobong block	Booke	.....	4	4		.....	4
			Lali	.....	8	8		3	5
			Kaula	.....	6	6		1	5
			Dabdabia	.....	2	2		.....	2
			Myah	.....	2	2		2	.....
			Total number of trees felled for firewood ...	.....	1,324	1,324		1,308	16

Annual Form No. 53—*continued.*

Division.	Forest Range.	Locality.	Description of trees.	On hand from previous year.	Felled during current year.	Total.	Disposed of during current year.		Closing balance.
				No.	No.	No.	How disposed of.	No.	No.
Darjeeling—*contd.*	Rungbúl	Dooteria block	Booke	.....	1	1	Converted into charcoal	1	.....
			Katus	.....	162	162		162	.....
			Phalat	.....	2	2		2	.....
			Lali	.....	117	117		117	.....
			Kaula	.....	68	68		68	.....
			Pyla	.....	64	64		64	.....
			Sissu	.....	27	27		27	.....
			Kabashi	.....	8	8		8	.....
			Bhudrassi	.....	30	30		30	.....
			Kharani	.....	20	20		20	.....
			Dabdabia	.....	16	16		16	.....
			Chilanni	.....	8	8		8	.....
			Myah	.....	23	23		23	.....
			Gobria	.....	1	1		1	.....
			Thala	.....	3	3		3	.....
			Jingni	.....	7	7		7	.....
			Doodoola	.....	22	22		22	.....
			Pakray	.....	1	1		1	.....
			Phusphusia	.....	1	1		1	.....
	Tukdah	Poomong block	Booke	.....	3	3		3	.....
			Lali	.....	2	2		2	.....
			Kaula	.....	19	19		19	.....
			Pyla	.....	19	19		19	.....
			Lepchaphal	.....	15	15		15	.....
			Champ	.....	1	1		1	.....
			Kabashi	.....	7	7		7	.....
			Kharani	.....	7	7		7	.....
			Myah	.....	3	3		3	.....
			Gobria	.....	10	10		10	.....
			Thala	.....	1	1		1	.....
			Jingni	.....	1	1		1	.....
			Chinia	.....	3	3		3	.....
			Kanakpa	.....	2	2		2	.....
			Furkia	.....	2	2		2	.....
			Kurkia	.....	1	1		1	.....
			Bahurie	.....	1	1		1	.....
			Total number of trees felled for charcoal ...	.....	678	678		678	.....
	Rungbúl... ...	Rungbúl block	Champ	.....	5	5	Cut into scantling	5	.....
			Booke	.....	17	17		17	.....
			Katus	.....	2	2		2	.....
			Lali	.....	2	2		2	.....
		Dooteria block	Booke	.....	2	2		2	.....
			Katus	.....	2	2		2	.....
	Goompahar ...	Poobong block	Booke	.....	5	5		5	.....
			Katus	.....	1	1		1	.....
			Champ	.....	1	1		1	.....
			Lali	.....	1	1		1	.....
	Tukdah	Rungirum block	Booke	.....	3	3		3	.....
			Total number of trees cut into scantlings ...	.....	41	41		41	.....
			Grand total of trees felled	.....	2,043	2,043		2,027	16
Teesta	Chel	Leesh	Sál	.....	107	107		107	.....
			Total ...	.....	107	107		107	.....
Kurseong ...	Balasun	Manjoos	Champ	.....	1	1	Building forester's house	1	.....
		Chenga	Lampattia	.....	1	1		1	.....
			Chilanni	.....	1	1		1	.....
	Bamunpokri ...	Bamunpokri	Sál	25	.....	25	Cut into logs	25	.....
			Do.	.....	2	2	Building forester's house	2	.....
			Champ	.....	1	1		1	.....
			Chilanni	.....	3	3		3	.....
			Lampattia	.....	4	4		4	.....
	Shukna ...	Lama Gumba	Sál	.....	35	35	Cut into sleepers ...	35	.....
		Kookloong block ...	Do.	.....	111	111	Cut into logs	111	.....
		Rungdung do. ...	Do.	.....	239	239	Ditto	239	.....
		Jogijhora do. ...	Do.	.....	96	96	Ditto & sleepers	96	.....
		Gorooman do. ...	Do.	.....	43	43	Ditto	43	.....
		Mana do. ...	Do.	.....	30	30	Ditto	30	.....
		Choklong do. ...	Do.	2	121	123	Ditto & sleepers	123	.....
		Gulma Hill do. ...	Do.	.....	115	115	Ditto ditto	115	.....
		Bereikh do. ...	Do.	.....	15	15	Ditto	15	.....
		Ruyom do. ...	Lampattia	.....	1	1	Made over to Cinchona Department and others for lime-burning ...	1	.....
			Panisaj	.....	2	2		2	.....
			Saj	.....	2	2		2	.....
			Jingni	.....	4	4		4	.....
			Kuddum...	.....	1	1		1	.....
			Kumbi	.....	2	2		2	.....
		Sivoke	Gambhari	.....	20	20	Cut into logs	20	.....
			Total ...	27	850	877		877	.....

ANNUAL FORM No. 53—*concluded.*

Division.	Forest Range.	Locality.	Description of trees.	On hand from previous year.	Felled during current year.	Total.	Disposed of during current year.		Closing balance.
				No.	No.	No.	How disposed of.	No.	No.
Julpigoree ...	Apalchand ...	Apalchand	Sál	.....	50	50	Converted into logs	50	.....
	Tundu	Lower Tundu	Do.	.....	40	40		40	.....
	Muraghat ...	Open forest	Do. jhanjies	.....	105	105		105	.....
			Do.	.....	320	320		320	.....
			Total ...	.....	515	515		515	.....
Buxa	Buxa	Block III, Compartment 8	Sál (dry)	.....	318	318	Cut into posts ...	318	.....
		Ditto ditto 10	Do. do.	.....	34	34	Ditto do. ...	34	.....
		Ditto ditto 12	Do.	.....	1,030	1,030	Ditto logs	943	.....
							Ditto sleepers ...	87	.....
		Ditto ditto 13	Do.	.....	341	341	Ditto logs	341	.....
		Ditto ditto 14	Do.	.....	1,065	1,065	Ditto do.	1,051	.....
							Ditto sleepers ...	14	.....
		Ditto ditto 15	Do.	.....	54	54	Ditto logs	54	.....
			Parari	.....	1	1	Ditto b.g. sleepers	1	.....
			Mahua	.....	1	1	Ditto ditto	1	.....
		Ditto ditto 16	Sál	.....	97	97	Ditto logs	97	.....
			Katus	.....	1	1	Ditto b.g. sleepers	1	.....
		Ditto ditto 18	Sál (dry)	.....	18	18	Ditto posts	18	.....
		Buxa Hills	Do.	.....	16	16	Ditto sleepers ...	16	.....
			Total ...	.....	2,976	2,976		2,976	.....

ANNUAL FORM No. 54.

FOREST DEPARTMENT, BENGAL.

Statement of Logs, Sleepers, and other Scantlings cut and exported during the year 1878-79.

Division.	Forest Range.	Locality.	Description of timber and scantlings.	On hand from previous year.		Cut during current year.		Total.		Disposed of during current year.			Closing balance.		Remarks.
				No.	C. ft.	No.	C. ft.	No.	C. ft.	How disposed of.	No.	C. ft.	No.	C. ft.	
Darjeeling	Rungbúl	Rungbúl block	Scantlings	.....	.....	2,884	1,775	2,884	1,775	Taken to depôt	2,884	1,775	.....	.....	
		Dooteria do.	Do.	.....	.....	315	178	315	178	Ditto	315	178	.....	.....	
	Goompahar	Poobong do.	Do.	.....	.....	71	477	71	477	Ditto	71	477	.....	.....	
			Total	.....	.....	3,270	2,430	3,270	2,430	Total	3,270	2,430	.....	.....	
	Rungbúl	Rungbúl block	Shingles	.....	.....	12,800	266	12,800	266	.....	12,800	266	.....	.....	
	Tukdah	Rungrum do.	Do.	.....	.....	8,400	175	8,400	175	.....	8,400	175	.....	.....	
	Goompahar	Poobong do.	Do.	.....	.....	10,200	212	10,200	212	.....	10,200	212	.....	.....	
			Total	.....	.....	31,400	653	31,400	653	Total	31,400	653	.....	.....	
	Rungbúl	Rungbúl block	Firewood	.....	.....	59,337	Mds.	59,337	Mds.	Taken to depôt	59,337	Mds.	.....	.....	
		Dooteria do.	Do.	.....	.....	110,289	"	110,289	"	Ditto	110,289	"	.....	.....	
			Charcoal	.....	.....	11,710	"	11,710	"	Ditto	11,710	"	.....	.....	
	Goompahar	Poobong do.	Firewood	.....	.....	891½	"	891½	"	Ditto	891½	"	.....	.....	
	Tukdah	Poomong do.	Charcoal	.....	.....	1,347½	.....	1,347½	.....	Ditto	1,347½	"	.....	.....	
			Total	.....	.....	Mds. 183,574½		Mds. 183,574½		Total	183,574½	Mds.	.....	.....	
Teesta	Chel	Leesh	Sál logs	.....	.....	129	5,171	129	5,171	.....	.....	.....	129	5,171	
	Rungit	Pashok	Do. n. g. sleepers	.....	.....	60	80	60	80	Taken to Pashok depôt	60	80	.....	.....	
			Total	.....	.....	189	5,251	189	5,251	Total	60	80	129	5,171	
Kurseong	Balasun	Dulk Jahar	Sál jhanjies	.....	.....	1	.....	1	.....	Taken to Tirihana depôt	1	.....	.....	.....	
	Bamunpokri	Bamunpokri	Do. logs	.....	.....	2	43	2	43	Ditto Rakti do.	2	43	.....	.....	
			Do. jhanjies	.....	.....	51	.....	51	.....	Ditto do. do.	51	.....	.....	.....	
		Rakti	Do. do.	.....	.....	7	.....	7	.....	Ditto do. do.	7	.....	.....	.....	
		Lama Gumba	Sál logs	4	170	.....	.....	4	170	Ditto do. do.	4	129	.....	.....	
			Do. b. g. sleepers	.....	.....	16	53	16	53	Ditto Lost do.	.....	41	.....	.....	
			Do. bridge do., 6′ × 8″ × 6″.	.....	.....	883	1,766	883	1,766	Ditto Patalpore do.	16	53	.....	.....	
										Ditto do. do.	711	1,422	172	344	
			Do. bed-plate sleepers 10′ × 12″ × 6″.	.....	.....	8	40	8	40	Ditto do. do.	8	40	.....	.....	
		Kookloong block	Sál n. g. sleepers	.....	.....	248	331	248	331	Ditto do. do.	248	331	.....	.....	
		Rungdung do.	Do. logs	29	807	138	3,791	167	4,598	Ditto Shukna do.	79	2,435	88	2,163	
			Do. do.	.....	.....	311	7,409	311	7,409	Ditto do. do.	92	2,205	219	5,204	
		Shukna do.	Do. do.	72	2,180	.....	.....	72	2,180	.....	.....	.....	72	2,180	
			Do. jhanjies	.....	.....	210	.....	210	.....	Taken to Shukna depôt	210	.....	.....	.....	
			Do. n. g. sleepers	285	380	.....	.....	285	380	Ditto Patalpore do.	285	380	.....	.....	
		Mahanadi do.	Do. logs (drift)	.....	.....	6	275	6	275	Ditto Shukna do.	6	275	.....	.....	
		Champasari do.	Do. jhanjies	162	.....	.....	.....	162	.....	Ditto Sivoke do.	8	.....	.....	.....	
		Mana do.	Do. logs	.....	.....	59	2,215	59	2,215	Ditto Patalpore do.	154	.....	.....	.....	
		Jogijhora do.	Do. do.	.....	.....	85	2,866	85	2,866	.....	.....	.....	59	2,215	
			Do. n. g. sleepers	.....	.....	2,502	3,336	2,502	3,336	.....	.....	.....	85	2,866	
			Do. bridge do., 6′ × 8″ × 6″.	.....	.....	105	210	105	210	Taken to Patalpore depôt	215	286	2,287	3,050	
	Shukna									Ditto do. do.	105	210	.....	.....	
		Choklong do.	Do. n. g. sleepers	767	1,023	4,394	5,859	5,161	6,882	Written off owing to mistake	543	724	.....	.....	
										Taken to Patalpore depôt	4,468	5,985	130	173	
			Do. bridge do.	.....	.....	36	72	36	72	Ditto do. do.	36	72	.....	.....	
		Gulma do.	Do. logs	.....	.....	42	1,370	42	1,370	Ditto Sivoke do.	42	1,370	.....	.....	
			Do. n. g. sleepers	1,628	2,170	.....	.....	1,628	2,170	Ditto Patalpore do.	.....	.....	.....	.....	

		Goroomara do.	Sál logs	71	1,895	86	1,857	157	3,752	Taken to Sivoke depôt ...	70	1,922	86	1,902	
										Lost in transit	1	39	.....	.....	
			Do. n. g. sleepers	.....	.....	4,002	5,336	4,002	5,336	Taken to Patalpore depôt ...	4,002	5,336	.....	.....	
			Do. bridge do.	.....	.....	137	274	137	274	Ditto do. do. ...	137	274	.....	.....	
		Sivoke valley (Noonmattee) block	Do. logs	17	357	.....	.....	17	357	Ditto Sivoke do. ...	17	357	.....	.....	
		Sivoke block	Do. do.	.....	.....	5	70	5	70	Ditto do. do. ...	5	70	.....	.....	
			Do. jhanjies	163	.....	.....	.....	163	.....	Ditto do. do. ...	163	.....	.....	.....	
			Gambhari logs	.....	.....	20	518	20	518	Ditto do. do. ...	20	518	.....	.....	
		Bereikh do.	Sál logs (old)	.....	.....	60	1,526	60	1,526	Ditto do. do. ...	40	1,167	20	359	
			Do. do.	42	1,478	24	421	66	1,899	Ditto do. do. ...	54	1,514	8	143	
										Lost in transit	4	242	.....	.....	
		Teesta do.	Do. logs	.....	.....	19	374	19	374	Taken to Sivoke depôt ...	19	374	.....	.....	
			Do. do. drift	.....	.....	3	68	3	68	Ditto do. do. ...	3	68	.....	.....	
			Do. n. g. sleepers	.....	.....	204	272	204	272	Ditto do. do. ...	204	272	.....	.....	
		Siliguri do.	Do. jhanjies	.....	.....	2	.....	2	.....	Ditto Patalpore do. ...	2	.....	.....	.....	
			Total ...	3,240	10,460	13,668	40,352	16,908	50,812	Total ...	13,680	30,314	3,226	20,498	
		Sivoke do.	Kokoa bamboos	.....	.....	278	.....	278	.....	Taken to Sivoke depôt ...	278	.....	.....	.....	
			Total ...	.....	.....	278	.....	278	.....	Total ...	278	.....	.....	.....	
Julpigoree..	Apalchand	Apalchand	Sál logs	.....	.....	50	.....	50	.....	.....	.....	.....	50	.....	
			Do. do.	11	.....	40	.....	51	.....	Taken to Lataguri depôt ...	44	.....	7	.....	
	Tundu	Lower Tundu	Do. n. g. sleepers	12	16	.....	.....	12	16	.....	.....	.....	12	16	
			Do. b. g. do.	43	143	.....	.....	43	143	.....	.....	.....	43	143	
			Do. slabs	184	.....	.....	.....	184	.....	.....	.....	.....	184	.....	
			Do. ends	84	.....	.....	.....	84	.....	.....	.....	.....	84	.....	
			Do. jhanjies	.....	.....	105	.....	105	.....	Taken to Lataguri depôt ...	105	.....	.....	.....	
	Muraghat	Muraghat	Do. logs	40	1,933	320	.....	360	1,933	Sent to Dudua do. ...	162	.....	158	.....	
			Do. b. g. sleepers	42	140	.....	.....	42	140	Sent to Muraghat do. ...	40	1,933	.....	.....	
			Do. scantlings	44	.....	.....	.....	44	.....	Depôt before 1877-78, but omitted in last year's return.	44	.....	.....	.....	
		Teesta river	Do. logs	.....	.....	3	283	3	283	Taken to Julpigoree depôt ...	3	283	.....	.....	Drift.
			Do. b. g. sleepers	.....	.....	58	183	58	183	Ditto do. do. ...	58	183	.....	.....	
	Julpigoree	Depôt	Do. n. g. sleepers	627	.....	.....	.....	627	.....	Were taken to depôt in 1877-78, but omitted to be entered in depôt account.	627	.....	.....	.....	
			Do. planks	48	.....	.....	.....	48	.....		48	.....	.....	.....	
			Do. slabs	26	.....	.....	.....	26	.....		26	.....	.....	.....	
			Do. ends	290	.....	.....	.....	290	.....		290	.....	.....	.....	
			Sorol planks	11	.....	.....	.....	11	.....		11	.....	.....	.....	
			Haldi do.	10	.....	.....	.....	10	.....		10	.....	.....	.....	
			Teen do.	151	.....	.....	.....	151	.....		151	.....	.....	.....	
		Teesta river	Do. logs	.....	.....	2	145	2	145	Taken to Julpigoree depôt ...	2	145	.....	.....	Do.
			Sissu do.	.....	.....	1	9	1	9	Ditto do. do. ...	1	9	.....	.....	Do.
			Total ...	1,623	2,232	579	620	2,202	2,852	Total ...	1,664	2,693	368	159	
		Ditto	Firewood	.....	.....	1,525	Mds.	1,525	Mds.	Taken to Julpigoree depôt ...	1,325	Mds.	.....	.....	
			Total ...	.....	.....	1,525	Mds.	1,525	Mds.	Total ...	1,325	Mds.	.....	.....	
Buxa ...	Buxa	Block III, Compartment No. 1 ...	Sida b. g. sleepers ...	.....	.....	11	38	11	38	Taken to Alipore depôt ...	9	31	2	7	
			Kumbi do. do. ...	.....	.....	10	34	10	34	Ditto do. do. ...	10	34	.....	.....	
			Siris do. do. ...	.....	.....	11	37	11	37	Ditto do. do. ...	10	34	.....	.....	
			Khair do. do. ...	.....	.....	8	27	8	27	Ditto Rajabathkawa depôt	1	3	.....	.....	
		Do. do. „ 2 ...	Bahera do. do. ...	.....	.....	10	35	10	35	Ditto Alipore do.	8	27	.....	.....	
			Akshi do. do. ...	.....	.....	10	34	10	34	Ditto do. do.	10	35	.....	.....	
			Kuddum do. do. ...	.....	.....	10	34	10	34	Ditto do. do.	10	34	.....	.....	
		Do. do. „ 3 ...	Sál logs	20	.....	.....	.....	20	.....	Ditto do. do.	10	34	.....	.....	
			Do. posts	.....	.....	318	.....	318	.....	Taken to Buxa Forest depôt ...	20	.....	.....	.....	
			Sissu logs	55	.....	.....	.....	55	.....	Ditto Alipore do.	315	.....	3	.....	
		Do. do. „ 4 ...	Sál do.	27	.....	.....	.....	27	.....		.....	.....	55	.....	
			Sissu do.	26	.....	.....	.....	26	.....	Taken to Buxa Forest depôt ...	23	.....	4	.....	
		Do. do. „ 5 ...	Sál do.	5	.....	.....	.....	5	.....		.....	.....	26	.....	
			Sissu do.	116	.....	.....	.....	116	.....		.....	.....	5	.....	
		Do. do. „ 6 ...	Champ b. g. sleepers ...	.....	.....	11	38	11	38	Taken to Alipore depôt ...	11	38	.....	.....	
		Do. do. „ 7 ...	Sal logs	339	.....	.....	.....	339	.....		.....	.....	116	.....	
			Sissu do.	380	.....	.....	.....	380	.....		.....	.....	339	.....	
		Do. do. „ 8 ...	Sál do.	1,204	.....	.....	.....	1,204	.....		.....	.....	380	.....	
			Sissu do.	7	.....	.....	.....	7	.....		.....	.....	1,204	.....	
		Do. do. „ 9 ...	Sál do.	22	.....	.....	.....	22	.....		.....	.....	7	.....	
			Sissu do.	358	.....	.....	.....	358	.....		.....	.....	22	.....	
		Do. do. „ 10 ...	Sál do.	935	.....	.....	.....	935	.....	Taken to Buxa Forest depôt ...	273	.....	358	.....	
			Do. posts	.....	.....	34	.....	34	.....	Ditto Alipore do. ...	34	.....	662	.....	
			Sissu logs	340	.....	.....	.....	340	.....		.....	.....	340	.....	

ANNUAL FORM No. 54—*continued.*

Division.	Forest range.	Locality.	Description of timber and scantlings.	On hand from previous year. No.	On hand from previous year. C. ft.	Cut during current year. No.	Cut during current year. C. ft.	Total. No.	Total. C. ft.	Disposed of during current year. How disposed of.	Disposed of during current year. No.	Disposed of during current year. C. ft.	Closing balance. No.	Closing balance. C. ft.	Remarks.
		Block III, Compartment No. 12 ...	Sál logs	.....	.....	1,108	.....	1,108	.....	Taken to Buxa forest depôt ...	297	.....	719	.....	
			Do. n. g. sleepers ...	.....	.....	1,867	2,489	1,867	2,489	Cut into sleepers	92	.....	.....	.....	
			Do. „ rejections ...	.....	.....	104	137	104	137	Taken to Alipore depôt ...	1,326	1,768	541	721	
			Do. slabs	.....	.....	1,376	.....	1,376	.....	Ditto Rajabhatkhawa ...	22	29	82	108	
		Do. do. „ 13 ...	Do. logs	.....	.....	352	.....	352	.....	.....	.....	.....	1,376	.....	
			Do. n. g. sleepers ...	.....	.....	501	668	501	668	Taken to Buxa forest depôt ...	129	.....	203	.....	
			Do. „ rejections ...	.....	.....	5	7	5	7	Cut into sleepers	20	.....	.....	.....	
			Do. slabs	.....	.....	260	.....	260	.....	Taken to Alipore depôt ...	501	668	.....	.....	
			Chilanni b. g. sleepers ...	.....	.....	10	34	10	34	.....	.....	.....	5	7	
										.....	.....	.....	260	.....	
		Do. do. „ 14 ...	Sál logs	.....	.....	1,241	.....	1,241	.....	Taken to Alipore depôt ...	9	31	.....	.....	
										Ditto Rajabhatkhawa do.	1	3	.....	.....	
										Ditto Buxa forest depôt ...	120	.....	1,076	.....	
			Do. n. g. sleepers ...	.....	.....	712	949	712	949	Cut into sleepers	45	.....	.....	.....	
			Do. „ rejections ...	.....	.....	40	53	40	53	Taken to Alipore depôt ...	521	695	191	254	
			Do. slabs	.....	.....	384	.....	384	.....	.....	.....	.....	40	53	
		Do. do. „ 15 ...	Do. logs	.....	.....	58	.....	58	.....	.....	.....	.....	384	.....	
			Parari do.	.....	.....	1	.....	1	.....	.....	.....	.....	58	.....	
			Do. b. g. sleepers ...	.....	.....	10	35	10	35	Cut into sleepers	1	.....	.....	.....	
			Mahua log	.....	.....	1	.....	1	.....	Taken to Alipore depôt ...	10	35	.....	.....	
			Do. b. g. sleepers ...	.....	.....	10	34	10	34	Cut into sleepers	1	.....	.....	.....	
		Do. do. „ 16 ...	Katus log	.....	.....	1	.....	1	.....	Taken to Alipore depôt ...	10	34	.....	.....	
			Do. b. g. sleepers ...	.....	.....	10	34	10	34	Cut into sleepers	1	.....	.....	.....	
			Sál logs	.....	.....	102	.....	102	.....	Taken to Alipore depôt ...	10	34	.....	.....	
		Do. do. „ 17 ...	Malgiri b. g. sleepers ...	.....	.....	6	21	6	21	.....	.....	.....	102	.....	
		Do. do. „ 18 ...	Chalta „ „ ...	.....	.....	4	14	4	14	Taken to Alipore depôt ...	6	21	.....	.....	
			Sál posts	.....	.....	18	39	18	39	Ditto ditto ...	4	14	.....	.....	
		Buxa Hills	Do. logs	.....	.....	16	.....	16	.....	Ditto ditto ...	18	39	.....	.....	
			Do. n. g. sleepers ...	.....	.....	627	836	627	836	Cut into sleepers	16	.....	.....	.....	
			Do. „ rejections ...	.....	.....	54	71	54	71	Taken to Alipore depôt ...	627	836	.....	.....	
			Do. slabs	.....	.....	241	.....	241	.....	Ditto Rajabhatkhawa ...	54	71	.....	.....	
		24th mile road	Do. logs	14	.....	.....	.....	14	.....	Ditto ditto ...	241	.....	.....	.....	
		23rd do.	Do. do.	16	.....	.....	.....	16	.....	.....	.....	.....	14	.....	
		22nd do.	Do. posts	18	.....	.....	.....	18	.....	Taken to Alipore depôt ...	18	.....	16	.....	
		Buxa forest depôt	Do. do.	5	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	
			Do. logs (old)	19	570	1	53	20	623	Cut into sleepers	20	623	5	.....	
		That is, on the side of the road from Cooch Behar to Buxa (omitted from last year's return by mistake).	Do. do. (1874-75)	50	3,683	.....	.....	50	3,683	Decrease on remeasurement ...	.....	1,464	50	2,219	
			Do. do. (1875-76)	15	83	43	2,000	58	2,083	Cut into sleepers	43	1,538	15	545	
			Do. do. (1876-77)	1,304	40,546	273	8,735	1,577	49,281	Taken to Alipore depôt ...	195	7,045	1,143	35,958	
										Cut into sleepers	230	5,988	.....	.....	
			Do. do. (1877-78)	615	20,668	.....	725*	615	21,393	Taken to Rajabhatkhawa depôt	9	290	.....	.....	
										Ditto Alipore depôt ...	233	8,839	3	150	* Increase on measurement.
			Do. do. (1878-79)	.....	.....	546	20,361	546	20,361	Cut into sleepers	379	12,404	.....	.....	
			Sissu logs	51	832	.....	.....	51	832	Ditto	251	8,964	295	11,397	
			Sal n. g. sleepers	441	558	10,241	13,655	10,682	14,243	.....	.....	.....	51	832	
			Do. „ rejections ...	.....	.....	598	796	598	796	Taken to Alipore depôt ...	9,825	13,100	857	1,143	
										Ditto ditto ...	14	18	280	373	
			Do. slabs	1,471	.....	6,427	.....	7,898	.....	Ditto Rajabhatkhawa ...	304	405	.....	.....	
										Used for carts	5	.....	.....	.....	
										Sold	610	.....	5,124	.....	
			Do. pieces	219	.....	551	.....	770	.....	Taken to Rajabhatkhawa ...	2,159	.....	.....	.....	
										Used for carts	7	.....	.....	.....	
										Sold	45	.....	718	.....	
			Total ...	8,072	66,970	28,232	51,723	36,304	118,693		19,173	65,224	17,131	53,469	

ANNUAL FORM No. 55.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Timber and other produce brought to depôt from the different Forest Divisions, 1878-79.

Depot.	Forest.	Description of Timber, &c.	Number of Pieces.	Number of C. ft.	Total of each Division. Pieces.	Total of each Division. C. ft.	Remarks.
		I.—TIMBER.					
		DARJEELING DIVISION.					
RUNGBUL ...	Rungbúl	Scantlings	2,884	1,775			
	Ditto	Shingles	12,800	266			
	Dooteria	Scantlings	815	178			
	Rungirum	Shingles	8,400	175			
	Poobong	Scantlings	71	477			
	Ditto	Shingles	10,200	212			
					34,670	3,083	
		TEESTA DIVISION.					
PASHOK	Pashok	Sál n. g. sleepers	60	80			
JULPIGOREE ...	Ditto	Do. rejected sleepers ...	7	9			Transferred from Pashok depôt.
	Ditto	Do. logs	9	215			
					76	304	
		KURSEONG DIVISION.					
TIRIHANA ...	Bulka Jhar	Sál jhanjie	1	.....			
RAKTI	Bamunpokri	Do. logs	2	43			
	Ditto	Do. jhanjies	51	.....			
	Raktí	Do. do.	7	....			
	Lama Gumba	Do. logs	4	129			
SHUKNA	Kooklong	Do. do.	79	2,435			
	Rungdung	Do. do.	92	2,205			
	Shukna	Do jhanjies	210	....			
	Mahanadi	Do. logs	6	275			
PATALPORE ...	Lama Gumba	Do. b. g. sleepers	16	53			
	Ditto	Do. bridge sleepers ...	711	1,422			
	Ditto	Do. bed-plate sleepers ...	8	40			
	Kooklong	Do. n. g. sleepers	248	331			
	Shukna	Do. do.	285	380			
	Champasari	Do. jhanjies	154	.....			
	Jogi Jhora	Do n. g. sleepers ...	215	286			
	Ditto	Do. bridge do.	105	210			
	Choklong	Do. n. g. do.	4,488	5,985			
	Ditto	Do. bridge do.	36	72			
	Gulma	Do. n. g. do.	1,628	2,170			
	Goroomara	Do. do. do.	4,002	5,336			
	Ditto	Do. bridge do.	137	274			
	Siliguri	Do. jhanjies	2	.....			
SIVOKE	Champasari	Do. do.	8	..			
	Gulma	Do. logs	42	1,370			
	Goroomara	Do. do.	70	1,922			
	Sivoke Valley	Do. do.	17	357			
	Sivoke	Do. do.	5	70			
	Ditto	Do. jhanjies	163	.....			
	Ditto	Gambhari logs	20	518			
	Bereikh	Sál logs (old)	40	1,167			
	Ditto	Do. do.	54	1,514			
	Teesta	Do. do.	19	374			
	Ditto	Do. n. g. sleepers	204	272			
	Ditto	Do. logs (drift)	3	68			
JULPIGOREE ...	From Sivoke depôt ...	Do. logs	215	5,752			
		Do. jhanjies	230	.....			
		Gambhari logs	19	405			
					13,596	35,435	
		JULPIGOREE DIVISION.					
LATAGORI ...	Lower Tundu	Sál logs	44	737			
	Cut in depôt	Do. slabs	309	.....			
	Lower Tundu	Do. jhanjies	105	.....			
	Ditto	Do. b. g. sleepers	100	333			
	Cut in depôt	Do. n. g. do.	80	107			
DUDUA	Muraghat	Do. logs	162	.....			
JULPIGOREE ...	Teesta river	Do. do.	8	284			
	Ditto	Do. b. g. sleepers	58	193			
	Ditto	Toon logs	3	145			
	Cut in depôt	Toon planks	172	.....			
	Ditto	Sál slabs	25	.....			
	Teesta river	Sissu logs	1	9			
DITTO	From Latagori depôt	Sál logs	44	737			
		Do. b. g. sleepers	100	333			
		Do. n. g. do.	91	121			
		Do. jhanjies	96	.....			
					1,392	2,999	
		BUXA DIVISION.					
RAJABHATKHAWA	Buxa forest depôt ...	Sál logs	9	290			
	Ditto ...	Do. n.g. sleepers, rejections	304	405			
	Buxa reserve ...	Ditto ...	76	100			
	Ditto ...	Do. slabs	2,400	.....			
	Confiscated ...	Do. pieces	10	130			
	Buxa reserve ...	Chilanni b.g. sleepers ...	1	3			
	Ditto ...	Siris ditto ...	1	3			

ANNUAL FORM No. 55—*continued.*

Depot.	Forest.	Description of Timber, &c.	Number of Pieces.	Number of C. ft.	Total of each Division. Pieces.	Total of each Division. C. ft.	Remarks.
		BUXA DIVISION—*contd.*					
ALIPORE...	Buxa forest depôt	Sál logs	428	15,884			
	Ditto	Do. n.g. sleepers	9,825	13,100			
	Buxa reserve	Ditto	2,975	3,967			
	Cut in depôt	Ditto	6,076	8,101			
	Ditto	Ditto rejections	189	252			
	Buxa forest depôt	Ditto ditto	14	18			
	Transferred from Rajbhatkhawa.	Ditto ditto	12	16			
	Cut in depôt	Do. pieces	582	.....			
	Ditto	Do. slabs	1,404	.....			
	Ditto	Do. posts	3	.....			
	Confiscated and Buxa forest depôt.	Ditto	385	705			
	Cut in depôt	Sissu b.g. sleepers	11	37			
	Ditto	Do. pieces	16	.....			
	Buxa reserve	Khair b.g. sleepers	8	27			
	Cut in depôt	Ditto	2	7			
	Ditto	Do. pieces	3	.....			
	Buxa reserve	Chilanni b.g. sleepers	9	31			
	Cut in depôt	Ditto ditto	2	7			
	Ditto	Ditto pieces	2	.....			
	Buxa reserve	Sida b.g. sleepers	9	31			
	Cut in depôt	Ditto	2	7			
	Ditto	Do. pieces	2	.....			
	Buxa reserve	Kumbi b.g. sleepers	10	34			
	Ditto	Siris ditto	10	34			
	Ditto	Bahera ditto	10	35			
	Ditto	Akshi ditto	10	34			
	Ditto	Kuddum ditto	10	34			
	Ditto	Champ ditto	11	38			
	Ditto	Parari ditto	10	35			
	Ditto	Mahua ditto	10	34			
	Ditto	Katus ditto	10	34			
	Ditto	Maligori ditto	6	21			
	Ditto	Chalta ditto	4	14			
GACHIDANGA ...	Alipore depôt	Sál logs	622	17,234			
	Ditto	Do. posts	207	531			
	Found in river	Ditto	2	.....			
	Alipore depôt	Do. slabs	1	.....			
KAWNIA ...	Gachidanga depôt	Do. logs	110	4,149			
	Ditto	Do. scantlings	1	.....			
	Ditto	Do. posts	7	.....			
	Alipore depôt	Ditto	63	.....			
	Found in river	Ditto	5	.....			
	Alipore depôt	Do. slabs	1	.....			
	Ditto	Do. n.g. sleepers	12,652	16,869	38,592	82,251	
		SUNDERBUNS DIVISION.					
KHULNA ...	Sipsah	Sundri logs	20	171			Confiscated
	Cobaduk	Ditto	16	194	36	365	
		II.—FIREWOOD.					
		DARJEELING DIVISION.	Mds.		Mds.		
DARJEELING ...	Rungbúl...	Firewood	59,837	.....			
JELLAPAHAR AND JORE BUNGALOW.	Goompahar	Ditto	891½	.....			
	Dooteria	Ditto	1,10,289	.....	1,70,517½		
	Ditto	Charcoal	11,710	.....			
POOMONG...	Poomong	Ditto	1,347	.....	13,057½		
					1,83,574½		
		JULPIGOREE DIVISION.					
JULPIGOREE ...	Teesta river	Firewood	1,525	.....	1,525		
		Total Firewood and Charcoal	.....	.....	1,85,099½		
		III.—BAMBOOS.					
		KURSEONG DIVISION.					
SIVOKE ...	Sivoke	Kokoa bans	278	.....			
JULPIGOREE ...	Sivoke depôt	Ditto	278	.....	556		

ANNUAL FORM No. 56.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Account of Timber and other Produce, 1878-79.

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
By balance at commencement of year.					
Darjeeling Division		.....	.....	.....	.....
Teesta Division	Sál logs	19	370	613	1,163
	" n. g. sleepers	318	518		
	" " rejected	206	275		
Kurseong Division	Sál logs	59	1,785	1,056	2,578
	" b. g. sleepers	15	53		
	" n. g. "	150	290		
	" " " rejected	267	352		
	" scantlings	8	.....		
	" kala khambas	318	.....		
	" planks	8	.....		
	" ends	51	.....		
	Sissu planks	28	.....		
	Hurra n. g sleepers	25	33		
	Miscellaneous scantlings*	77	165		
Julpigoree Division	Sál logs	129	3,916	1,661	5,034
	" b. g. sleepers	42	140		
	" n. g. "†	639	852		
	" planks†	48	.....		
	" ends†	374	.....		
	" slabs†	210	.....		
	Toon logs	2	89		
	" planks	151	.....		
	Jhow logs	1	37		
	Sorol planks	11	.....		
	Haldi "	10	.....		
	Miscellaneous scantlings	44	.....		
Buxa Division	Sál logs	2,800	73,486	12,363	‡88,800
	" posts	36	138		
	" b. g. sleepers	9	28		
	" n. g. "	6,236	11,048		
	" " " rejected	163	217		
	" pieces	264	.....		
	" slabs	483	.....		
	" scantlings	38	15		
	" kala khambas	38	.....		
	Sissu logs	220	3,500		
	Khair "	11	144		
	Miscellaneous logs	15	224		
Received during the year.					
Darjeeling Division	Scantlings	3,270	2,420	34,670	3,083
	Shingles	31,400	653		
Teesta Division	Sál n. g. sleepers	60	80	60	80

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Removed by Purchasers.					
Darjeeling Division	Scantlings	223	139	223	139
Teesta Division	Sál logs	9	215	204	475
	" n. g. sleepers	188	251		
	" " " rejected	7	9		
Kurseong Division	Sál logs	387	10,668	12,156	26,788
	" b. g. sleepers	16	53		
	" n. g. "	10,053	13,494		
	" " " rejected	267	352		
	" bridge rejected	924	1,848		
	" bed plate "	8	40		
	" jhanjies	421	.....		
	" planks	8	.....		
	Gambhari logs	18	392		
	Sissu planks	28	.....		
	Hurra n. g. sleepers	25	33		
Julpigoree Division	Sál logs	156	2,847	1,705	3,878
	" b. g. sleepers	47	157		
	" n. g. "	583	777		
	" planks	46	.....		
	" ends	243	.....		
	" slabs	240	.....		
	" jhanjies	71	.....		
	Toon logs	1	51		
	" planks	315	.....		
	Jhow logs	1	37		
	Sorol planks	11	.....		
	Haldi "	10	.....		
	Sissu log	1	9		
Buxa Division	Sál logs	1,306	36,339	21,256	61,574
	" posts	115	310		
	" n. g. sleepers	18,449	24,577		
	" pieces	424	.....		
	" slabs	918	.....		
	" kala khambas	11	.....		
	Sissu logs	7	147		
	Khair "	2	25		
	Miscellaneous logs	11	156		
	" slabs	10	.....		
Sunderbuns Division	Sundri logs	35	352½	35	352½
Transfer from Teesta to Kurseong Division.					
	Sál sleepers	204	272	204	272
Lost and used by the Department.					
Darjeeling Division	Scantlings	2,857	2,028½	34,257	2,681½
	Shingles	31,400	653		

* Omitted by mistake from closing balance of last year's return.
† Rectifications made; omissions from last year's report, the Lataguri depôt.
‡ Cubic contents not given in last year's balance, thus total is increased from 88,662 to 88,900.

Accounts of Timber and other Produce, 1878-79—concluded.

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Kurseong Division	Sál logs	433	11,929		
	„ n. g. sleepers	11,070	14,760		
	„ b. g. „	16	53		
	„ bridge „	989	1,978		
	„ bed-plate „	8	40		
	„ jhanjies	596	.....		
	Gambhari logs	20	518	13,132	29,278
Julpigoree Division	Sál logs	47	1,021		
	„ „ „	162	.....		
	„ b. g. sleepers	158	526		
	„ n. g. „	80	107		
	„ jhanjies	105	.....		
	„ slabs	334	.....		
	Toon logs	2	145		
	„ planks	172	.....		
	Sissu logs	1	9	1,061	1,508
Buxa Division	Sál logs	437	16,174		
	„ posts	395	795		
	„ n. g. sleepers	18,876	25,168		
	„ „ „ rejected	595	791		
	„ pieces	582	.....		
	„ „	10	130		
	„ slabs	3,164	.....		
	Miscellaneous b. g. sleepers	146	500		
	„ pieces	23	.....	24,868	43,468
Sunderbuns Division	Sundri logs	36	365	36	365
Transferred from one Depôt to another.					
Teesta Division	Sál logs	9	215		
	„ b. g. sleepers, rejected	7	9	16	224
Kurseong Division	Sál logs	215	5,752		
	„ jhanjies	230	.....		
	Gambhari logs	19	405	464	6,157
Julpigoree Division	Sál logs	44	737		
	„ b. g. sleepers	100	333		
	„ n. g. „	91	121		
	„ jhanjies	96	.....	331	1,191
Buxa Division	Sál logs	732	21,383		
	„ posts	357	531		
	„ scantlings	1	.....		
	„ n. g. sleepers	12,652	16,869		
	„ slabs	2	.....	13,724	38,783

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Teesta Division	Sál logs	2	21		
	„ n. g. sleepers	56	75		
	„ „ „ rejected	100	134	158	230
Kurseong Division	Sál logs	.....	64		
	„ n. g. sleepers	3	4		
	„ scantlings	8	.....		
	„ jhanjies	50	.....		
	„ ends	51	.....	112	68
Julpigoree Division	Sál n. g. sleepers	6	8		
	„ ends	47	.....		
	„ planks	2	.....		
	Toon log	1	38	56	46
Buxa Division	Sál slabs	328	.....		
	„ posts	1	10		
	„ scantlings	1	4		
	„ n. g. sleepers	23	32	353	46
Sunderbuns Division	Sundri logs	1	12½	1	12½
Cut up in Depôt.					
Julpigoree Division	Toon logs	2	145	2	145
Buxa Division	Sál logs	673	17,214		
	Sissu „	2	46		
	Miscellaneous logs	2	33	677	17,293
Transferred from one Depôt to another.					
Teesta Division	Sál log sleepers	9	215		
	„ b. g. „ rejected	7	9	16	224
Kurseong Division	Sál logs	215	5,752		
	„ jhanjies	230	.....		
	Gambari logs	19	405	464	6,157
Julpigoree Division	Sál logs	44	737		
	„ b. g. sleepers	100	333		
	„ n. g. „	91	121		
	„ jhanjies	96	.....	331	1,191
Buxa Division	Sál logs	732	21,383		
	„ posts	357	531		
	„ scantlings	1	.....		
	„ n. g. sleepers	12,652	16,869		
	„ slabs	2	.....	13,724	38,783
Balance at close of year.					
Darjeeling Division	Scantlings	191	262½	191	262½
Teesta Division	Sál logs	8	134		
	„ n. g. sleepers, rejected	99	132	107	266
Kurseong Division	Sál logs	105	2,984		
	„ jhanjies	502	.....		
	„ b. g. sleepers	15	53		
	„ n. g. „	1,164	1,552		
	„ bridge „	65	130		
	Gambhari logs	2	126		
	Miscellaneous scantlings	77	155	1,930	5,000

Julpigoree Division	Sál logs	40	2,090		
	" "	161	.....		
	" n. g. sleepers	130	174		
	" b. g. "	153	509		
	" slabs	304	.....		
	" ends	84	.....		
	" scantlings	44	.....		
	" jhanjies	34	.....		
	Toon planks	8	.....	959	2,773
Buxa Division	Sál logs	1,258	36,067		
	" posts	312	523		
	" b. g. sleepers	9	28		
	" n. g. "	8,713	11,639		
	" " " rejected	735	976		
	" pieces	422	.....		
	" "	10	130		
	" slabs	3,641	.....		
	" scantlings	37	11		
	" kala khambas	27	.....		
	Sissu logs	211	3,397		
	Khair "	9	119		
	Miscellaneous logs	2	35		
	" b. g. sleepers	146	500		
	" pieces	13	.....	14,945	33,355
Total		.....	.....	104,065	222,012

FIREWOOD AND CHARCOAL.

Balance in hand at the commencement of the year.		Mds.	Mds.		Mds.
Darjeeling Division	Firewood	4,511½		*Removed by purchasers.*	
	Charcoal	366	4,877½	Darjeeling Division — Firewood	1,69,086
Received during the year.				Charcoal	12,641½
Darjeeling Division	Firewood	170,517½			1,81,727½
	Charcoal	13,057½	183,574½	Julpigoree " — Firewood	625
Julpigoree "	Firewood	1,525	1,525		625
				Lost or used by the Department.	
				Darjeeling Division — Charcoal	60½
					60½
				Julpigoree " — Firewood	900
					900
				Balance at close of year.	
				Darjeeling Division — Firewood	5,943
				Charcoal	721·5
					6,664½
Total		.....	189,977½	Total	1,99,977½

BAMBOOS.

Received during the year.				*Removed by purchasers.*	
Kurseong Division	Bamboos	278	278	Bamboos	250
					250
Transferred for one Depôt to another.				*Transferred from one Depôt to another*	278
	Bamboos	278	278		278
				Balance at close of year.	
				Bamboos	28
					28
Total		...	556	Total	... 556

Annual Form No. 60.

FOREST DEPARTMENT, BENGAL.

Abstract showing the value of Timber and of Live and Dead-Stock for the year 1878-79.

Description of Timber and other Stock.	On hand at commencement of year.		On hand at the close of the year.		Difference.		Remarks.
	Number.	Value.	Number.	Value.	In favor of the year.	Against the year.	
		Rs. A. P.		Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling Division.							
Scantlings	.....	.....	191	196 14 0			
Firewood, Mds.	4,511½	627 14 0	5,403	1,485 12 0			
Charcoal "	366	314 4 0	721½	604 12 7			
Iron safes	2	250 1 4	2	250 1 4			
Dumpy level	.....	.....	1	168 0 0			
Total ...	.....	1,192 3 4	.....	2,705 7 11	1,513 4 7	.....	
Teesta Division.							
Sál logs	19	370 0 0	8	156 0 0			
" sleepers, n. g.	388	776 0 0	.....	.....			
" " rejected	206	141 10 0	99	68 0 0			
Iron safe	.....	.....	1	60 0 0			
Total ...	.....	1,287 10 0	.....	284 0 0	.....	1,003 10 0	
Kurseong Division.							
Gambhari logs	.....	.....	2	31 8 0			
Sál logs	39	5,034 12 0	105	2,238 0 0			
" sleepers, b. g.	15	33 12 0	15	33 12 0			
" " n. g.	150	300 0 0	1,164	2,328 0 0			
" " rejected	267	200 4 0	.....	.....			
" " bridge	.....	.....	65	48 12 0			
" scantlings	8	24 0 0	.....	.....			
Kala khambas	378	988 8 0	502	1,255 0 0			
Hurra sleepers, n. g.	25	37 8 0	.....	.....			
Sál planks	8	8 0 0	.....	.....			
Sissu "	28	14 0 0	.....	.....			
Sál ends	51	12 12 0	.....	.....			
Miscellaneous	.....	.....	.....	.....			
Scantlings	.....	.....	77	8 10 0			
Elephants	4	7,000 0 0	4	7,000 0 0			
Bullocks	2	60 0 0	2	60 0 0			
Bamboos	.....	.....	28	1 0 0			
Total ...	.....	11,713 8 0	.....	13,004 10 0	1,291 2 0	.....	
Julpigoree Division.							
Toon logs	2	10 0 0	.....	.....			
Sál "	129	1,935 0 0	202	3,369 15 4			
" sleepers, b. g.	42	94 8 0	153	115 8 0			
" " n. g.	620	1,240 0 0	130	260 0 0			
" ends	290	108 12 0	84	31 8 0			
" slabs	26	4 14 0	304	60 11 0			
Miscellaneous	.....	.....	.....	.....			
Scantlings	44	.....	44	.....			
Jhow logs	1	5 0 0	.....	.....			
Sorol planks	11	13 12 0	.....	.....			
Haldi "	10	5 0 0	.....	.....			
Toon "	151	188 12 0	8	10 0 0			
Sál "	45	56 4 0	.....	.....			
Jhanjies	.....	.....	34	68 0 0			2 died.
Elephants	4	6,000 0 0	2	3,500 0 0			
Total ...	.....	9,661 14 0	.....	7,415 10 4	.....	2,246 3 8	
Buxa Division.							
Sál logs	2,800	83,809 10 0	1,258	47,360 0 0			
" posts	36	108 0 0	312	396 14 0			
" sleepers, b. g.	9	9 0 0	9	9 0 0			
" " n. g.	8,286	14,062 6 0	8,713	15,324 0 0			
" " rejected	163	81 8 0	735	267 0 0			
" pieces	264	132 0 0	432	110 3 9			
" slabs	483	60 6 0	3,041	737 12 3			
" scantlings	38	14 0 0	37	13 10 5			
" kala khambas	38	114 0 0	27	27 0 0			
Sissu logs	220	3,500 0 0	211	3,307 0 0			
Khair "	11	184 0 0	9	60 8 0			
Miscellaneous	15		2	17 8 0			
Sál b. g. sleepers	.....	.....	146	291 0 0			
" pieces	.....	.....	13	8 7 1			
Elephants	4	10,500 0 0	4	10,500 0 0			
Buffaloes	2	40 0 0	.....	.....			
Total ...	.....	1,12,614 14 0	.....	78,429 15 6	.....	34,184 14 6	
Palamow Division.							
Elephants	1	1,500 0 0	1	1,500 0 0			
Total ...	.....	1,500 0 0	.....	1,500 0 0	.....	.....	
Sunderbuns Division.							
Boats	31	5,732 7 5	35	7,058 14 11			
Total ...	.....	5,732 7 5	.....	7,058 14 11	1,326 7 6	.....	
Grand Total ...	.....	1,43,702 8 9	.....	1,10,298 3 2	.....	33,403 14 5	

C. E. G.—Reg. No. 5174—600—2-8-79.

SYSTEM AND RESULTS OF WORKING THE FORESTS NEAR DARJEELING FOR THE FUEL SUPPLY OF THE STATION AND CANTONMENT.

No. 84TP, dated Darjeeling, the 26th August 1879.

From—J. S. GAMBLE, ESQ., Offg. Conservator of Forests, Bengal,

To—The Secretary to the Government of Bengal, Revenue (Forest) Dept.

WHEN lately inspecting the forests of the Darjeeling Division, the Inspector-General requested me to furnish him with a statement of the system and results of working the forests near Darjeeling for the fuel supply of the station and cantonment.

2. The statement which has been prepared by Mr. J. C. McDonell, Deputy Conservator, in charge of the Darjeeling Division, is now submitted, and I should be obliged if it could be transmitted to the Government of India in accordance with the Inspector-General's request.

Memorandum on the supply of Firewood and Charcoal to the station of Darjeeling by the Forest Department.

1. The object of the supply of fuel departmentally is described in the annual report of the Forest Department in Bengal for 1877-78, and I cannot do better than quote the remarks of the Conservator, Dr. Schlich, which are as follow :—" Until lately, the system of working the forests has been that private parties bought trees at certain rates and cut them up into firewood and charcoal. The natural consequence of this practice was that only the very best trees were bought, while hollow and crooked trees remained in the forest unused. It was out of the question to continue this system any longer, and the Conservator commenced therefore to supply Darjeeling, Jellapahar, and a few plantations by departmental agency with firewood and charcoal."

2. It should be explained, first, that the places of demand for station supply are—

1*st.*—*Darjeeling*, on a spur of the Senchal range of hills, and reached by a broad cart road.

2*nd.*—*Jellapahar*, the military cantonment of Darjeeling on the same spur, but higher up, and reached by a narrower but shorter cart road.

3*rd.*—*Jore Bungalow*, the central village where the roads to Darjeeling, Jellapahar, and the different forest blocks all branch off.

Besides these, firewood and charcoal are supplied on forest roads to Government departments or tea plantations on indent.

3. The forests from which the supply is at present obtained are :—In the *Rungbul Range*, the Rungbul and Dooteria blocks; in the *Tukdah Range*, the Rangirúm and Senchal Jhora blocks; and the Poobong block in the *Goompahar Range*.

(*a*) *Dooteria* supplies at present by far the greatest part of the total quantity both of wood and charcoal.

It is situated on and below the hill cart road which leads to Darjeeling, five miles from that place, three miles from Jellapahar, and one mile from Jore Bungalow. There are two roads to Jellapahar—one a cart road by which the distance is three miles, and another bridle road two miles; the former is used by carts and the latter by coolies carrying wood.

The produce of this forest, however, goes only to Darjeeling and Jore Bungalow.

(*b*) *Rungbul* only gives a small quantity, which is obtained from old fallen trees, stumps, and windfalls. It is six miles from Darjeeling on the same road as Dooteria, the latter being on the opposite side of the road four miles from Jellapahar and two miles from Jore Bungalow.

The small quantity now obtained from this forest goes to Jellapahar only.

(*c*) *Rangirúm* is not being worked at present, merely the dry wood, windfalls, &c., being utilized for the supply to the Commissariat at Jellapahar. It is four miles from Darjeeling by the cart road, stretching eastward from Jore Bungalow, three miles from Jellapahar for carts, but perhaps only two miles by the shorter road alluded to above.

(*d*) *Goompahar* also is not yet worked, but only used in the same way as Rangirúm. It is situated to the west of Darjeeling and the forests mentioned above, and its nearest point is five miles from Darjeeling, the first one and a half miles along a new cart road lately made. The road has in places a steep gradient of 1 in 15, which was found to be unavoidable. It joins the hill cart road, and carts proceed along that road to Darjeeling, a distance of three and a half miles.

The firewood obtained from this forest has hitherto been sent to Jellapahar, but, if required, could of course be delivered at Darjeeling. It is expected that the tramway which is now in course of construction will, when open, carry in the supply from the junction with the hill cart road, our department carting to that point from the forest.

Besides the supply to these places, a commencement has been made in the Pomong block of the Tukdah Range, which is situated to the east of Jore Bungalow beyond Rangirúm on the Tukdah spur.

This forest is only worked at present for the supply of charcoal to the Gielle tea estate, In this case the department does not undertake the delivery. but merely the manufacture in the forests, whence it is carried to its destination by coolies belonging to the estate.

NOTE.—A sketch map is appended, showing the position of the forests.

3. The growth of all the forests in the Darjeeling Division consists of what has been called "Upper Hill Forest" or "Oak Forest." The principal species which compose these forests are—

(1) Quercus lamellosa (Booke).
„ annulata (Phalat).
„ pachyphylla (Bara Katús).

(2) The Chestnuts (*Katus*) ... { *Castanopsis rufeocens.* „ *tribuloides.*

(3) The Magnolias (*Champ*) ... { *Michelia excelsa.* „ *cathcartii.* *Magnolia Campbellii.*

(4) The Maples ... The chief and largest of which are—
Kabashi ... { *Acer Campbellii.* „ *lævigatum.*

(5) Laurels ... In great variety, the most important being—
Lali or Kaula ... *Machilus odoratissima.*
Lepchaphal ... *Phœbe attenuata.*
Sisi ... *Dhapnidium pulcherrimum.*
Tarsing ... *Beilschmiedia Roxburghiana.*

(6) Other trees of greater or less value, such as—
Walnut—*Juglans regia.*
Toon—*Cedrela Toona.*
Pipli—*Bucklandia populnea.*
Bhadras—*Elæocarpus lanceo folius.*
Gobria—*Echinocarpus dasycarpus.*
Dabdabbi—*Meliosma Wallichii.*

4. *Uses of the trees.*—The trees the wood of which is chiefly used for building timber are the oaks, chestnuts, magnolias, walnuts, and pipli. The maples and laurels are a good deal used for temporary constructions, while toon, maple, and others of the softer wooded species are used for tea-boxes.

For firewood all kinds are used, but the wood of the oak is preferred to any other, that of the chestnuts and magnolias being considered a bad combustible. Chestnut, however, makes the best charcoal, but the wood of all kinds is cut and delivered as firewood or made into charcoal indiscriminately. When the supply was first taken in hand endeavours were made to give a good proportion of oak, but it was found impossible to do so, as the amount of oak left in the forests was small compared with other kinds, all the sound good trees being required for sawn timber.

5. *Reproduction.*—Where the forest has been much cleared, it is found that at first a natural growth of *kharani* (symplocos lucida), *kanukpa* (Evodia fraxinifolia), and other kinds spring up. Neither of those named are worth anything as regards timber, but are fair firewood and useful for covering the ground and assisting quick reproduction by keeping down the grass and ground herbaceous vegetation.

Besides these a more valuable tree appears and one to which we look as our greatest aid in re-stocking a forest, and that is the maple. If the forest is closed from grazing, it is found that the maple springs up in every direction, if there is a mature tree anywhere near to provide the seed. These trees are generally the first to show themselves, but gradually the better kinds, such as the oak, chestnut, and magnolia, introduce themselves afterwards, and are found coming up usually in sufficient proportion to form the future forest. But this system of natural reproduction is very slow and somewhat uncertain, and it has been found that the quickest and probably eventually the cheapest plan is to assist the natural growth by artificial plantation. The first areas cleared were on the Rungbul block, where formerly a plantation of 144 acres had been made (now compartments 2, 3, 5, 6), and served as a nucleus for future extensions. In 1877-78, compartments 4, 7, and 8, comprising 103 acres, were cleared for firewood, and the whole re-planted during 1878-79 and the present year. This plantation has been very successful, and is being continued in the Dooterea block in the portions worked in 1878-79 for firewood and charcoal. Thus the present system of working the forests is—

1*st.*—To divide the forest into blocks and compartments.

2*nd.*—To take up yearly a particular compartment (the preliminary working plan will be, it is hoped, completed during the current year) and clear off for firewood and charcoal such trees as are unfit to give scantlings, or not likely to be profitably left to give seed, or for timber in the future. Very few timber-giving trees now remain in the block which is being worked, as its proximity to the station has drawn the demand for timber to it for many years back, and there are in these virgin forests very few young trees which can be left for future timber supply, nearly all those met with being long over mature and often nothing but mere shells.

3rd.—To re-plant usually 10 feet by 5 feet with transplants from nurseries formed on the spot.

6. *Mode of delivery, rates, &c.*—The work of supply of firewood and charcoal is carried out by contractors, in all cases Nepalese. Tenders were called for in the usual way, and the local rates for hire of carts, pay of axe-men, &c., having been ascertained, a tolerable correct idea was gained as to the amount which should be paid for the contracts. Eventually the following were agreed on :—

(*a*) *For Darjeeling.*—Whether to the depôt in the bazar or to residents' houses—
Firewood—Rs. 17 per 100 maunds.
Charcoal—As. 8½ per maund.

(*b*) *For Jellapahar*—
Firewood—Rs. 15 per 100 maunds.
Charcoal—As. 8½ per maund.

During the year 1878-79 Rs. 13-8 was paid, but in 1879-80 it has been raised to Rs. 15, as the former rate was found too low.

(*c*) *For Jore Bungalow*—
Firewood—Rs. 7 per 100 maunds.
Charcoal—As. 6 per maund.

A proper stamped agreement is entered into with the contractors just before the end of the official year generally, of which agreement the following are some of the conditions (other than the ordinary ones, regulating the supply according to orders, the rates, dates on which payments are to be paid, and the usual penalty of damages to the extent of Rs. 200 to be levied for non-fulfilment, besides loss of claim to any wood or charcoal lying on the ground, but not delivered on the day on which the contract may be cancelled) viz.—

(*a*)—No trees are allowed to be felled unless marked by a Forest Officer. In the event of an unmarked tree being felled, the price is deducted from the contractor's bill.
(*b*)—No branch wood of a less diameter than 4″ is allowed to be brought to depôt.
(*c*)—All trees to be cut one foot above ground.
(*d*)—All dry and fallen trees or parts are of trees are required to be utilized for firewood.
(*e*)—Firewood to be cut into billets 18″ × 12″ × 4″.

Note.—The wood is cut up into these billets in the forest, and carried to the roadside by coolies, whence it is carted to its destination. The cutting is done with the axe. Great endeavours have been made to get the men to use saws, but they have hitherto failed, except in one or two small instances, axe-men having apparently an insuperable objection to change their own implement for the saw.

(*f*)—No wet or half-burnt charcoal is accepted. Forty-two seers are taken as representing one maund.
(*g*)—Within three months of the beginning of the work the contractors are required to deliver over and above the daily requirements a reserve stock of charcoal in a godown belonging to the department, and this charcoal is held in stock during the pleasure of the Forest Officer.

The object of this is to provide a reserve in case supplies may fail.

(*h*)—No huts or building of any kind are allowed to be erected in the forest without permission, and no saplings, &c., allowed to be cut to construct them, it being found that the charcoal owners cause great damage among the young growth if not carefully looked after.

7. *Charcoal.*—The charcoal is made in the ordinary cone-shaped kilns used by the natives in this district, the wood being cut up into 3′ to 4′ lengths and piled above ground. A flue is left underneath to fire the kiln, the whole gradually built up with smaller wood towards the top and then covered over with leaves and mud outside. They usually take from a week to three weeks burning, and the outturn is ordinarily stated to be 1 to 4, though I do not know if this has been accurately tested.

The charcoal when fully burnt and dry is carried by coolies to the godowns on the roadside. When required, it is weighed out into gunny-bags containing about 30 seers each, put into a cart covered with a tarpaulin (in the rains) and sent to its destination.

The recipient is not allowed to retain the bags, but must empty out the charcoal and return the bags at once to the cartmen who carry them back to the godown in the evening.

8. *Payment.*—Payments are made once a month to the contractors as soon after the 1st as possible. No advances or part payments of any kind are made on any account. This was difficult to arrange at first, owing to its having been the custom to give advances to contractors, but with a little trouble the practice was stopped.

9. *Accounts.*—The system of accounts is as follows :—

A purchaser requiring a quantity of fuel remits the money in advance (no credit being given) to the Divisional Officer only, who gives a receipt. An order is then issued through the forest ranger to the contractors for the delivery of the quantity, which is usually sent in within two days. A challan is sent with the carts, which challan is signed by the recipients and is taken back to the forest ranger at Jore Bungalow, and forms the voucher for the contractor's bill and on which he is paid.

The fuel being weighed out into the carts at Jore Bungalow, it follows that the quantity entered in the challan is expected to arrive at Darjeeling. Should, however, there be a discrepancy, the contractor is made to pay for it at Rs. 8 per 100 maunds wood and annas 7½ per maund for charcoal, *i.e.* the difference between the price paid to him for delivery and that received from the public by us.

Thus, for firewood, we receive Rs. 25 per 100 maunds and pay Rs. 17 for delivery; for charcoal Re. 1 and pay annas 8½ for delivery.

In the case of the depôt agent the procedure is somewhat different. He gives an indent one day for the quantity required to be sent in the next day. For this also a challan is sent, and this he signs, and it is treated in the same way as those signed by residents.

He does not pay in advance, but is required to give a daily statement of sales, keeping up a book in English for the purpose, the entries in which must agree with the receipts or challans signed by him. The amount received by him is daily paid to the Divisional Officer. His commission is then paid to him and the balance credited in the cash book.

As, however, his sales are always a little below his receipts, it follows that there is a small amount outstanding against him at the end of each month. Should this amount become at all large, he is required to pay it at the end of the month, and he is thus never a debtor to any large extent.

10. *Darjeeling delivery*—Consists of—

(*a*) that made to the bazar depôt;
(*b*) that to residents' houses, *i.e.* as near to the houses as carts may be allowed to go.

As regards the former, a large godown, capable of holding in the lower storey some 1,200 maunds of wood if filled (about eight days' supply), and in the upper 800 maunds of charcoal, was erected in a convenient central position in the bazar. The object is to supply the bazar and other poorer residents who are not in a position to send for large quantities of fuel at one time.

The Manager of the Happy Valley tea estate just below Darjeeling also takes his supply of charcoal from the depôt, generally 1,000 to 1,200 maunds annually.

Primarily, this depôt was managed by a departmental munshi; but this was found a very unsatisfactory arrangement, and now it is in the hands of an agent to whom all fuel is sold at rates a little below the usual ones, the difference being his profit. Thus the usual price of firewood being Rs. 25 per 100 maunds, it is sold to him at Rs. 24. Charcoal, usually Re. 1 per maund, is sold to him for 15 annas 6 pie per maund.

This has been found to work satisfactorily, and there is no loss of wood and charcoal on the depôt accounts.

The delivery to residents is made by carts in quantities not less than 50 maunds at a time, each cart containing 10 maunds. The carts go as near to the houses as they can or are allowed. Intimation is given to the resident beforehand, and on arrival of the wood he has to arrange for coolies at his own expense to place it in his godown.

In the same way orders for 10 maunds or a multiple of that quantity of charcoal are complied with.

The rates charged in Darjeeling are—

Firewood at Rs. 25 per 100 maunds against Rs. 17 per 100 maunds paid for delivery.
Charcoal at Re. 1 per maund, against 8 annas 6 pies paid.

These rates apply both to the bazar, depôt, and to residents.

The average delivery of wood to the depôt is 4,150 maunds per month, and to residents 4,500 maunds.

Charcoal to residents—130 maunds per mensem.
" " 680 " "

11. *Jellapahar supply*—Consists of—

(*a*) Commissariat Department;
(*b*) residents.

To the former firewood only is delivered, as they do not use any charcoal. An indent is given by the Executive Commissariat Officer before the 1st of every month, stating the quantity required during the month—usually 5,000 maunds—and delivery is made by men and partly by carts to the Commissariat depôt, a receipt being given for the quantity taken by them during the month, and the amount due adjusted by book transfer.

For the residents, they pay in advance in the usual way, and are supplied either direct from the forest or from the Commissariat yard from wood not yet taken over by that department.

Some residents occasionally get their fuel from Jore Bungalow, thus saving a little, as the rates there are lower, and allow of a small saving on the carriage.

The rates charged in Jellapahar are the same as in Darjeeling, viz.—

Rs. 25 per 100 maunds firewood, against Rs. 15 paid by us for delivery.
Re. 1 per maund for charcoal, against 8 annas 6 pie paid.

The average monthly delivery of firewood to Jellapahar for both Commissariat and residents is 5,000 maunds; charcoal eight maunds per month.

12. *Jore Bungalow.*—There is only a small sale here of fuel, mostly to the bazar, residents, &c., and the rates charged are—

Firewood Rs. 15-10 per 100 maunds, against Rs. 7 paid for delivery.
Charcoal 14 annas per maund, against 6 annas paid.

A running stock of both is kept in depôt sufficient to supply the public wants.

The average monthly delivery of firewood to Jore Bungalow is 430 maunds; charcoal 120 maunds.

13. *Pomong.*—From the Pomong forest (see paragraph 2) the Gielle tea estate is supplied with charcoal. This is not a delivery arrangement; we merely make the charcoal in the forest, and give over at the kiln.

This is carried out in the usual way by a contractor to whom we pay 5 annas per maund for making, and receive 10 annas from the purchaser.

The quantity required by him is usually from 1,200 to 1,500 maunds per annum, and would probably not increase.

This work is conducted in exactly the same way as regards cutting of trees, &c., and terms of contract as the larger contracts described above, and needs no further comment.

14. *Results.*—The following are the actual results obtained during the two years 1877-78 and 1878-79 as taken from the annual report :—

Firewood.

Purchasers.	Quantity in 1877-78.	Quantity in 1878-79.
	Mds.	Mds.
To the Public Works Department ...	3,533	12,962
„ Commissariat „ ...	71,381	49,000
„ residents of Darjeeling, Jellapahar, and Jore Bungalow	92,259	1,07,124
Total ...	1,61,173	1,69,086

Charcoal.

To the Gielle tea estate ...	500	1,286
„ residents of Darjeeling, Jellapahar, and Jore Bungalow ...	5,372	11,194
„ Public Works Department ...	...	160
Total ...	5,872	12,640

The financial aspect is as follows for the two years :—

Particulars.	1877-78. Rs. A. P.	1878-79. Rs. A. P.
1,73,046 maunds 20 seers of firewood and charcoal sold realized on an average per 100 maunds	24 2 3*	.....
1,81,727 maunds 6 seers firewood and charcoal realized on an average	.....	27 4 9†
Total expenditure on an average per 100 maunds, including share of establishment, &c.	16 2 11	.....
Ditto ditto for 1878-79 ...	.....	21 1 1
Average surplus per 100 maunds ...	7 15 4	6 3 8

As yet we have no very reliable data regarding the outturn of wood and charcoal per tree. Such as we have, show 89 maunds of firewood per tree obtained in 1877-78 and 128 in 1878-79; charcoal, 4 maunds in 1877-78 and 16 in 1878-79; but, as observed above, these figures are hardly to be depended on, especially as regards firewood, as a large proportion of the quantity obtained was from fallen trees, &c., which were not shown in the return as trees felled, and the number was not set off against the firewood obtained.

In my opinion the quantity of firewood per tree on an average will probably be most correctly put at 100 maunds and charcoal 15 maunds; the trees used for charcoal being generally smaller, as charcoal is better and easier made from green stems, which can be at once cut into short round logs and do not require splitting.

* The difference is caused partly by increased establishment and further by extra expenditure on depôts.
† The actual rates paid and received did not vary very much.

Comparative Statement of Rates during 1877-78 *and* 1878-79.

Place.	1877-78. Firewood. Rates received.	1877-78. Firewood. Rates paid.	1878-79. Firewood. Rates received.	1878-79. Firewood. Rates paid.
	Per 100 maunds. Rs.	Per 100 maunds. Rs.	Per 100 maunds. Rs.	Per 100 maunds. Rs.
Darjeeling	25	17-8 and 17	25	17
Jore Bungalow	15-10	7-8 „ 7	15-10	7
Jellapahar	20	13-8	25	15

Place.	1877-78. Charcoal. Rates received.	1877-78. Charcoal. Rates paid.	1878-79. Charcoal. Rates received.	1878-79. Charcoal. Rates paid.
	Per maund. Rs. A. P.	Per maund. Rs. A. P.	Per maund. Rs. A. P.	Per maund. Rs. A. P.
Darjeeling	1 0 0	0 8 6	1 0 0	0 8 6
Jore Bungalow	0 12 0	0 6 0	0 12 0*	0 6 0
Jellapahar	1 0 0	0 8 6	1 0 0	0 8 6
Pomong	0 10 0	0 5 0	0 10 0	0 5 0

* Raised to 14 annas in 1879-80.

Rungbul.				Dooteria.				Bomong.		Goompahar.	
1877-78.		1878-79.		1877-78.		1878-79.		1877-78.	1878-79.	1877-78.	1878-79.
Firewood.	Charcoal.	Firewood.	Charcoal.	Firewood.	Charcoal.	Firewood.	Charcoal.	Charcoal.	Charcoal.	Firewood.	Firewood.
861	43	296	.....	1,065	2,006	1,006	581	323	87	.....	22
Total . 904		296		3,071		1,587		323	87	.....	22

ABSTRACT.

Firewood.

In 1877-78 1,71,685 maunds were obtained and delivered in Darjeeling, &c., against 1,926 trees cut.

In 1878-79 1,70,517 maunds of firewood were delivered in Darjeeling, &c., against 1,324 trees cut.

In 1877-78 6,940 maunds 16 seers of charcoal, inclusive of deliveries and balance undelivered, were obtained, against 2,049 trees cut. This applies only to Rungbul and Dooteria.

In 1878-79 10,508 maunds were obtained from Dooteria only, against 581 trees cut.

Pomong.

In 1877-78 1,177 maunds 6 seers of charcoal were obtained, against 323 trees cut.

In 1878-79 1,160 maunds 20 seers of charcoal were obtained, against 87 trees cut.

No. 1829—217F.

COPY, with the sketch map in original, submitted to the Secretary to the Government of India, in the Home, &c., Department.

By order of the Lieutenant-Governor of Bengal,

C. W. BOLTON,

Under-Secy. to the Government of Bengal

CALCUTTA;
REVENUE DEPARTMENT—*Forests*,
The 11*th September* 1879.

E F. M —Reg. No. 8250—8-10-79.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

LOWER PROVINCES OF BENGAL

FOR THE YEAR

1879-80.

BY

J. S. GAMBLE,

Offg. Conservator of Forests, Bengal.

Calcutta:

PRINTED AT THE BENGAL SECRETARIAT PRESS.

1880.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN BENGAL

For the year 1879-80.

By J. S. GAMBLE,

Offg. Conservator of Forests, Bengal.

SECTION I.—SUMMARY OF ADMINISTRATION DURING THE YEAR.

1.—Inspection of Forests.

The chief work in the inspection and examination of new forest tracts, with the view to their being brought under management as *reserved* or *protected* forests, was that done by the Assistant Conservator, Hazaribagh Division, in the forests of Saranda, district Singbhoom.

2. Arrangements for the taking up of the Saranda forests were first considered in 1864, when a report of the Deputy Commissioner of Singbhoom stated that there were several tracts of forest in his district, those of Saranda, Koreykeyla, and Porahát being the property of Government. In 1870-71 the forests were examined by Captain Losack, Deputy Conservator, in charge of the Bhagulpore Division, and a description of them is given in paragraphs 33 to 41 of the Forest Administration Report for that year. On the 11th August 1875, a notification in the *Calcutta Gazette* constituted the Saranda Pir a *reserved forest*, and the Conservator, in paragraph 32 of his Annual Report for 1875-76, pointed out the probable value of the tract as a forest reserve, and stated his intention to visit it at an early date. Press of work, however, and other circumstances, prevented this being done; and consequently, when the notification under section 34 of the Indian Forest Act was published on 23rd January 1879, the Singbhoom forests were omitted from the notification, as the Conservator was of opinion that the area should be further examined before its final reservation was determined upon.

3. Accordingly, on his return from leave, Mr. H. H. Davis was posted to the Hazaribagh Division and directed to report on the Singbhoom forests and to make proposals regarding the areas to be demarcated. Mr. Davis has submitted a full and interesting report. He describes the Saranda Pir as follows:—

"The situation of Saranda is at the south-west corner of Singbhoom, having the Tributary States of Gangpur and Bonai for its southern and western boundaries, and parts of Singbhoom for its northern and eastern. It has the Koel and Karo rivers for natural boundaries on the northern side, and ranges of hills on the west, south, and east.

"With regard to the configuration of the ground, it will be found that the north-west portion is more or less flat and undulating, and the north-eastern part consists of low hills, whilst the southern side is nearly all hills ranging up to 2,700 feet.

"Of the climate, temperature and rainfall, I can personally say very little, but from the information derived by me from the meteorological observations

kept at Chaibassa, I am able to state that the average rainfall is about 50 inches; the temperature during the cold months about 75°; hot months and rains 87°.

"The climate is pronounced to be very unhealthy. Leprosy, cholera, and fever are what the natives of the place suffer from most.

"The strong winds seem to commence towards the end of March, and frequent thunder-storms, with hail and rain, take place in April. The direction of the wind is generally from the south-west, and the damage done to the sál is observable everywhere, in some parts blowing trees down entirely, and in others breaking off the tops or making them lean over to one side. As soon as conservancy measures are adopted, it will be very necessary to retain the mass of trees complete on the sides of the forest blocks from which most damage is apprehended.

"With regard to the geological formation of the Saranda Pir, it is scarcely possible to imagine anything more variable. The northern portion is mostly gneiss rock, with a soil of sand and clay in some parts, and both mixed in others; whilst in the south it is laterite and sand, and in the beds of some of the rivers slate, while iron is found in places. In Porahát I came across shale, and not more than five miles from Bandgaon the whole of a hill was almost pure limestone.

"The general character of the forests may be said to be almost pure sál, except in low-lying parts and those bordering on the water-courses where the following kinds of trees are to be met with occasionally :—

Khein	...	...	...	Diospyros Melanoxylon.
Asan	...	...	...	Terminalia tomentosa.
Gambhar	...	...	...	Gmelina arborea.
Pakur	...	...	...	Ficus infectoria.
Goolair	...	...	...	Ficus glomerata.
Mahua	...	...	...	Bassia latifolia.
Koosum	...	...	...	Schleichera trijuga.
Piar	...	...	...	Buchanania latifolia.
Simul	...	..	...	Bombax malabaricum

Bamboos and a few plantains."

4. He describes the damage done by jungle fires as very bad indeed, and reports that the damage by fire is almost equalled by the damage done to the sál trees by tapping for resin. He thinks that the number of large sál trees killed by this means must amount to about a lakh, but that some steps have lately been taken by the civil authorities to restrict, if not to stop, the practice. Very considerable damage is also done by indiscriminate grazing. The population is not very great, being about 400, of whom 300 are Kols. Local demands for forest produce in Saranda are not very great, there being a large amount of private land in the vicinity covered with forest. In consequence of the great damage done to the timber by tapping for resin—a process which usually results in the death of the tree—large profits from standing green timber must not be expected for some time to come; but it may be found possible to utilize largely the dead and dry timber, of which such quantities exist, and this will especially be the case if, as has been proposed, a railway is made through Singbhoom. Mr. Davis reports that the principal lines of export will be by land to Burrakur, and thence to Calcutta if necessary, and by the Brahmini river to Cuttack. He thinks that, with proper precautions and management, timber may be successfully taken down the difficult Brahmini. He has submitted proposals as to the demarcation of a large area after setting apart a sufficient portion for the cultivators and their grazing grounds, and after the Conservator's inspection the demarcation will be arranged. The areas in Singbhoom, which Mr. Davis recommends for reservation, are—

1. Saranda Pir.
2. Koina Valley.
3. Kolehan.
4. Porahát.

The Assistant Conservator estimates the average contents per acre of the Singbhoom forests at 200 sál trees, which are approximately of the following dimensions:—

	No. of trees.
Above 6 ft. girth	4
4½ ft. to 6 ft.	20
1½ ft to 4½ ft.	40
Under 1½ ft. girth	136
	200

5. During his tour in the forests of the Julpigoree and Buxa Divisions, the Officiating Conservator inspected most of the forest tracts which still remain and have not been taken up as reserves.

These forests are the following:—

Sal Forests.

(1.) *Malhati Forest.*—About 400 acres of young and half-grown sál close to the present Apalchand reserve.

(2.) *Kyranti Forest.*—About 100 acres of sál forest on the Chel river near Kyranti Hât.

(3.) *Goshai Hât Forest, better known as the 'Muraghat open forest'*—About 2,500 acres to the south of the Muraghat reserve, and most of it containing very fair timber, though it has been a good deal worked lately for timber for the Road Cess Department.

(4.) *Salbari Forest.*—A few acres of sál at Salbari on the road from Julpigoree to Falakata.

(5.) *Salkuer Forest.*—About 1,100 acres of sál forest lying between the Toorsa and Golundi rivers close to the south-west edge of the Borojhar reserve.

(6.) *Butri Forest.*—About 1,400 acres of sál forest between the Kalajhora and Alaikuri river to the north-west of the Buxa reserve.

These forests the Officiating Conservator has recommended for reservation if the local authorities approve.

Sissu and Khair Forests.

(1.) *The Teesta Bank Forests.*—These are only of small extent and contain only small timber.

(2.) *The Muranga Forest.*—About 700 acres on the banks of the Jaldaka river near Salbari.

(3.) *The Goodurkoti Forests.*—About 1,000 acres on the banks of the Jaldaka river north of Churabunder. The growth in these forests is good, but they are evidently largely resorted to by the villagers for cutting house posts and for grazing.

(4.) *The Gaboor Basra Forest.*—About 300 acres north of Godadabri, between the Borojhar and Buxa reserves.

The Officiating Conservator has recommended that these be constituted 'protected forests,' and the privileges of the surrounding villages defined. It is, in his opinion, important to prevent their destruction, as they are chiefly along river banks liable to considerable denudation when the water is high. The Jaldaka especially is already a very wide, shallow river, abounding in quicksands, and the destruction of the forests on its banks might only result in still further widening its bed and allowing the river to threaten the cultivated lands beyond them.

6. In the Darjeeling district the forests in the lands held by the Cinchona Department were examined in company with the Superintendent of the Calcutta Botanical Garden, and it was arranged that a portion of them, partly on and below the crest of the main ridge, partly in the Rangjo Valley near Rangbi, and partly in the lower Reyang Valley, should be transferred to the

management of the Forest Department under certain conditions. These areas are—

1st.—The Sureil and Mahalderam blocks, containing fine hill forest, which has been very little worked. These will increase the area of forest in the Darjeeling Division by about 2,400 acres.

2nd.—The Rangbi addition, about 350 acres of hill forest.

3rd.—The Bereikh addition, about 300 acres of lower mixed forest, with a considerable proportion of sál.

2.—Area and Boundaries.

7. In paragraph 12 of last year's report, a list was given of the areas which, by notification under clause II, section 4 of the Forest Act, it was proposed to constitute reserved forests. Of these areas, the 19 square miles in the Julpigoree Division have been finally gazetted during the year, and 31 square miles in Hazaribagh since the end of the year. The rest are still under settlement, and the Officiating Conservator hopes that this settlement will not be delayed beyond the end of 1880-81.

8. The following areas in the Darjeeling district were proposed under section 4 of the Act to be made reserves in *notification of* 18*th October* 1879 :—

Darjeeling Division.

Pugraingbong forest	435 acres.

Kurseong Division.

Babookhola	8,004 „
Mamring	
Tookria Jhar	
Nipania	
Gurabadi	
Moolta	
Bengdubi	
Dalka Jhar Jotes	
Shilibhita	

As there is little to prevent these lands, all of which except the first three were purchased, from being at once gazetted as permanent reserves, it is hoped their final reservation will not take much longer time.

9. The Rhotas, Rohul and Bans-i-koh forests in the Shahabad district, Palamow Forest Division, have, as explained later on, been gazetted as ceasing to be reserved forests; so that, as the anticipations of the table given in paragraph 12 of last year's report have not entirely been fulfilled, the following revised table is now given :—

Division.	Area in square miles.						Himalaya and Sub-Himalayan forests.	Lower Bengal and Chota Nagpore forests.
	At the beginning of 1879-80.	Added during the year.	Excluded during the year.	Total.	Expected increase.	Total.		
Darjeeling	37	1	4½	33½	5	38½	38½	.....
Teesta	66	.....	.....	66	190	256	256	.....
Kurseong	99	.....	.....	99	13	112	112	.....
Julpigoree	148	18½	.....	166½	5	171½	171½	.....
Buxa	250	.....	.....	250	4	254	254	.....
Palamow	216	.....	37	179	.....	179	.....	179
Hazaribagh	.....	.....	.....	.....	31	31	.....	31
Singbhoom	.....	.....	.....	.....	400	400	.....	400
Sunderbuns	1,581	.....	.....	1,581	.....	1,581	.....	1,581
Chittagong	570	.....	.....	570	1,150	1,720	.....	1,720
Total ...	2,967	19½	41½	2,945	1,798	4,743	832	3,911

10. *Demarcation.*—The progress made during last year was shown in a table given in paragraph 15 of the report, separate columns being given for forests actually reserved and for such as have yet only been preliminarily notified.

This year the alterations have not been very great. In Darjeeling Division about four miles have been demarcated, four and a half still remaining to be completed. In the Teesta Division only a few short lines, which can hardly be expressed in area, except very roughly, still remain. In the Kurseong Division

about three miles are wanting, and in Chittagong the demarcation is in progress and very nearly completed for the Kasalong and Rinkheong forests. In almost all divisions the boundaries which still remain to be done are those about which some question exists as in Darjeeling and Kurseong, or which are under settlement and alteration by the forest settlement officers as in the Teesta and Chittagong Divisions.

11. The *boundary records* are proceeding. Materials for those of the demarcated part of the Goompahar Range, and nearly the whole of the Rangbul Range are ready, as well as for the Kurseong Division. The records of the Julpigoree Division are in process of completion for the Dainah Reserve finishing the whole, and those of the Palamow Division will be probably completed for Betla, Saidope, Kumandi, and Ramundag.

12. *Blocks and Compartments.*—As far as the blocks have yet been arranged, they are given in Chapter II under the heads of the divisions to which they belong. The system of compartments in the Buxa reserve was described in the working plan. No other forests have as yet been so divided, except that, as the works in the Darjeeling Division proceed, compartments are formed and planted.

3.—Protection and Improvement.

13. The *superior establishment* consisted on the 1st April 1880 of—

1 Conservator.
2 Deputy Conservators.
8 Assistant Conservators.
2 Sub-Assistant Conservators.

13 officers.

One Deputy Conservator was on leave, while, since the close of the year, one Assistant Conservator has resigned, and one Sub-Assistant Conservator been transferred, so that the establishment really consists of 11 officers only.

14. *For Subordinate Forest and Office Establishment* a monthly maximum amount of Rs. 5,000 was sanctioned for 1879-80. This has, in consequence of the new arrangement in Chittagong, been increased to Rs. 5,581 for the year 1880-81. For other divisions no change is made.

15. On the 1st April 1880 the following forest and depôt establishment was entertained—

Rangers	...	...	13	(of whom two are at the forest school.)
Foresters	...	...	66	
Forest Guards	...	...	171	
	Total	...	250	

This includes the Chittagong Hill Tracts establishment. The number sanctioned for the different divisions are as follow:—

	Rangers.	Foresters.	Guards.
Darjeeling Division	2	2	18
Teesta "	1	3	21
Kurseong "	2	4	22
Julpigoree "	1	4	18
Buxa "	2	5	19
Palamow "	...	4	21
Hazaribagh "	...	1	2
Sunderbuns "	5	30	18
Chittagong "	1	13	35
	14	66	174

making a total of 254 officials, costing at present Rs. 4,087. These numbers will be slightly increased by the small establishment required for Saranda.

16. *The Office establishment* consists of 19 clerks and 26 peons, costing Rs. 1,142. At the close of the year two forest rangers were sent to the forest school at Dehra Dún for a course of study.

17. *Breaches of Forest Rules.*—During the year 67 cases were instituted, involving 158 persons. The details are given in form 48, from which, too, it will be seen that in 56 cases, involving 120 persons, convictions were obtained shewing a much larger percentage than last year. Most of the cases were on account of unauthorized removal of forest produce, though several, and among them the most important, were for setting fire to the forests.

18. *Roads and Bridges.*—Existing roads have been repaired and improved, and in addition the following new roads have been made:—

		Miles.
Darjeeling Division	... ...	1
Teesta ,,	... ...	11
Kurseong ,,	... ...	3
Julpigoree ,,	... ...	28½
Buxa ,,	... ...	9½
Chittagong ,,	... ...	2
		55

The chief feature of these additions is the commencement made to open up the interior of the Sitapahar Reserve in Chittagong, and the good beginning made towards a series of proper inspection and control roads in the Julpigoree Division.

19. *Buildings and Boats.*—The following were constructed during the year:—

Darjeeling Division.

An inspection house at Lopchu (commenced).
A fuel godown at Kurseong (commenced).

Teesta Division.

The divisional head-quarters bungalow at Kalimpung.

Kurseong Division.

The divisional head-quarters bungalow at Dhobijhora.
A forester's house at Bamunpokri.

Julpigoree Division.

A ranger's house at Khairkuta.
Ditto ditto Kadambari.

Buxa Division.

A forester's house at Chilapatta.
A depôt ditto Alipore.
An elephant shed at Rajabhatkhawa.

Palamow Division.

A small elephant shed at Daltonganj.

Sundurbuns Division.

A station-house at Pussur.
Ditto ditto Roymangal.
Ditto ditto Samukpatha.
Ditto ditto Bamunghatta.
Ditto ditto Saterbag.
One station boat '*Aries.*'

Chittagong Division.

The divisional head-quarters bungalow at Rangamati.

Chittagong Hill Tracts.

A station-house at Chandraguna.
Ditto ditto Sylock.
Ditto ditto Ishamati.
Ditto ditto Matamori.
Clerks' quarters at Rangamati.

20. The following is a list of buildings for which rent is paid by Forest Officers:—

1. The Julpigoree forest bungalow—cost Rs. 1,800, rent Rs. 10 per month.
2. The Buxa forest bungalow—cost Rs. 1,000, rent Rs. 7 per month.
3. The Kalimpung forest bungalow—cost Rs. 3,560, rent Rs. 20 per month.
4. The Dhobijhora forest bungalow—cost Rs. 4,500, rent Rs. 20 per month.
5. The Rangamati forest bungalow—cost Rs. 2,500, rent Rs. 20 per month.

21. List of rest-houses which have cost more than Rs. 200 each, and for the occupation of which no rent is paid:—

		Rs.
(1).	The Rangirúm bungalow	Not known.
(2).	„ Rangbul „	500
(3).	„ Jor bungalow ranger's house	500
(4).	„ Goompahar „ „	500
(5).	„ Bamunpokri plantation bungalow	1,000
(6).	„ Sivoke depôt bungalow	2,000
(7).	„ Chenga ranger's house	500
(8).	„ Kaptai plantation bungalow	500

22. The public bungalow at Rangirúm has been repaired during the year, and by permission of the Lieutenant-Governor half of it has been occupied for a time. The collections amounted to Rs. 706, while the expenditure was Rs. 373, leaving a sum of Rs. 334 for improvement of the grounds and garden.

23. *Reproductive measures.*—During the year an area of 139½ acres has been added to the plantations, making a total of 953½ acres. The distribution is as follows:—

Division.	Oak chestnuts, magnolia, etc.	Conifers.	Spanish chestnut, toon and walnut, etc	Teak, toon, sál sissu, etc.	Sál.	Bamboos.	Baobab.	India-rubber.	Total.
Darjeeling	312½	... ..	33	.. ..	.....	.....	.....	.....	345½
Kurseong	.....	13	.....	221	.....	1	.....	2	237
Julpigoree	.....	.....	.....	8	.....	.....	... ..	.....	8
Buxa	.....	... ..	.....	.....	45	.....	.....	.....	45
Sunderbuns	.....	.....	.....	.....	.....	..	1	.....	1
Chittagong	. ..	.....	.....	310	.....	.....	.....	. ...	310
Total ...	312½	13	33	534	45	1	1	2	953½

The description of the work done during the year is given in section II under the heads of the different divisions.

24. In almost all places where systematic planting is to be carried out, and especially in Darjeeling Division, the system of planting in lines has been or will be introduced. At the same time measures are being taken to reduce the expenditure. During the years in which planting works have been carried on in Bengal, a great deal of information has been obtained and experience gained of the requirements of the different species and the best methods of planting, and when this is considered, the expenditure incurred cannot be said to be thrown away. Planting in the Darjeeling Hills is by no means difficult below an altitude of 7,000 feet: where the difficulty exists is in the time required for raising plants in the nurseries, until they are large enough to be put out without fear of their being choked by the ground vegetation which is usually so profuse. Besides, seed is not procurable every year, the oaks scarcely give one crop every three years, and some of the best species, like *Quercus pachyphylla*, are most difficult to procure sound. The magnolia seed usually takes a long time to germinate. Perhaps the easiest hard-wooded

tree to grow in the hills is the pipli (*Bucklandia populifolia*), which of late years has been very successfully grown; maple and toon are always easy, while of exotic trees the ash (*Fraxinus floribunda*) and cypress (*Cupressus torulosa*), seeds of which have been procured regularly from the North-West Provinces, have proved themselves to be perfectly hardy and to be as easy to raise as most trees indigenous to Sikkim. The whole of the Rakti block of the Bamunpokri plantation is now well stocked, and has a very healthy appearance, while the exclusion of fire from the Garidura block for a series of years has converted what was a dense crop of tall grass into a forest of young trees, and chiefly sál.

25. In the Buxa Division the filling up of the Savannah tracts on the south of the Buxa range in compartments 25 and 26 is an important thing, and will be carried on as fast as we can afford to do it. The planting works have up to date been perhaps too much scattered; they will now be concentrated and followed up regularly. In Chittagong there is no doubt but that teak thrives well at Sitapahar, while other species suffer much from the ravages of game. Labour is here our great difficulty, but the introduction of the line system will doubtless reduce the cost of works and, in the Officiating Conservator's opinion, benefit greatly the growth of teak which, mixed as it will be with bamboo, will be in the most favourable condition for forming a valuable property.

26. Regarding the experiment made with economic plants in the Royal Botanical Garden, Calcutta, Dr. King has supplied the following information:—

"A few seedling trees of the carob (*Ceratonia siliqua*), raised from seeds sent by the Government of India in 1877, continue to thrive but poorly. I have, as stated in former reports, no hope that this species will ever answer in a climate so utterly unsuited to it as that of Lower Bengal. The tree fruits in the Punjab and grows fairly well in the Saharunpore Botanical Garden. Further trials of it should therefore, in my opinion, be confined to the drier parts of the Upper Provinces.

"The trees in the small baobab plantation continue to grow slowly but steadily. I intend, when the plants become a little larger, to carry out Sir Joseph Hooker's suggestion of coppicing them, so as to find out whether re-production by coppice can be depended on for baobab in this part of India.

"The whole of the eight species of *Eucalyptus* marginally noted, of which the Government of India sent seeds in 1877, have failed from the same cause, namely the damping off of the seedlings during the rainy season. It appears to me a pure waste of time to go on trying to coax *Eucalyptus* to grow in a locality so manifestly unsuited to it in every way as the Gangetic Delta.

Eucalyptus hemiphloia.
Ditto hæmastoma.
Ditto paniculata.
Ditto sideroplloia.
Ditto longifolia.
Ditto tereticornis.
Ditto bicolor.
Ditto Melanoxylon.

"Of the three India-rubber-yielding species, of which seeds were collected in South America at the instance of the Secretary of State for India, living plants of only two, viz. the Para and Ceara rubbers, were ever received in this garden. The Para rubber (*Hevea Braziliensis*) has proved quite unsuited to this part of India, and is not likely to be accommodated with a congenial home in any place so far from the equator as Calcutta. The Ceara rubber tree (*Manihot Glaziovii*) has on the other hand proved very hardy in Calcutta. Our first received plants looked for some time after their arrival weak and lanky, and I was not very hopeful about them. Further experience showed that these appearances had been the result of coddling, and that, when freely exposed to sun and rain, this manihot is a wonderfully hardy plant, capable of standing the roughest treatment, easily grown and readily propagated. If its rubber turns out really good, the cultivation of this species will no doubt be taken up by tea-planters whose gardens are on the plains, and by indigo-planters as adjuncts to their staple cultivation. In expectation of large demands for young plants and seeds, I have formed a Ceara rubber plantation on a suitable piece of ground on the outskirts of the garden.

"There are in the garden some plants of *Prosopis pubescens*, a plant of which the pods yield a good tanning material. These were raised from seed sent by the Government of India four years ago; they continue to grow well, but have not as yet flowered. Many years ago the cultivation of the tree yielding the well-known Divi Divi tan (*Cæsalpinia coriaria*) was undertaken in this garden.

There are now many large Divi Divi trees here, and they yield pods freely every year, the seeds being regularly distributed gratis to all applicants.

"The demand for seed and seedlings of the guango or rain tree (*Pithecolobium Saman*) continues very great. As yet seed is yielded to a very small extent by the few trees of this species that exist near Calcutta, and I have been obliged to indent on the Government of Jamaica for supplies. This wonderful tree grows faster than any hitherto introduced into Bengal, with the single exception of the *Casuarina*. It gives a beautiful shade, and yields a pod with a sweet pulp, which is greedily eaten by cattle. For avenues, cantonment squares, and situations where dense shade is wanted, no tree is more suitable than this.

"The demand for mahogany still continues, but I am able to meet it as annual supplies of seed are now received through Kew from the West Indies."

27. The experiments which are being made by the Department are referred to in section II. The wattle trees (*Acacia Melanoxylon, decurrens*, and *dealbata*) tried in the Darjeeling Division have grown well in localities below 7,000 feet and sheltered, but they bear transplanting very badly, and their growth, though fast in height, is weak, and they keep very thin. It is intended to make a good experiment with the *Pithecolobium Saman* in the Terai and elsewhere as soon as seed can be obtained. In connection with the Birch Hill Park at Darjeeling a number of trees and shrubs of different kinds are being grown at Rangirúm, and in Chittagong experiments are being made in the planting of mahogany, which the Officiating Conservator confidently hopes will thrive well in the Karnafuli valley.

28. *Creeper cutting.*—In the Kurseong Division creepers were cut in the Lama-Gumba block of the Bamunpokri Range and in the Kooklong block of the Sukna Range, area 2,253 acres, cost Rs. 184. In the Buxa Division, block III, compartments 17, 18, and 19, area 3,185 acres were cleared for Rs. 105. This is cheaper than the work in the Kurseong Division, as the country is level, interspersed with Savannah at Buxa, while the blocks cleared in the Kurseong Division were hill forests of big timber.

29. *Protection from fire.*—The present year has seen the area over which protection works are undertaken considerably increased, and the extremely favourable season has been useful as a training for the heavier works which will be necessary when, as in 1879, an exceptionally dry winter puts the divisional arrangements to a severer test.

30. In the Palamow Division only were there any serious fires, and even then, considering that this was the first year for protection, a large area was saved, and the efforts of the divisional officer to punish the culprits were successful. The measures taken in the different divisions are given in section II.

31. Before leaving this subject, the Officiating Conservator wishes to record his thanks to the Commissioner of Rajshahye and Cooch Behar, and the Deputy Commissioners of Darjeeling and Julpigoree, for their great assistance. He is much indebted to the Commissioner for the kind way in which he has considered his proposal regarding a system of mutual fire protection in those districts, where the question is of such importance not only to the department, but to planters and other occupiers of land, as well as to the maintenance of public works.

32. As some of the results of the jungle fires which occurred in 1879, it may be mentioned that the supply of cane, which is much used for bridge-making, as well as baskets and ordinary purposes, has run short to such an extent that even far in the interior of Sikkim, owing to its having been destroyed by the fires of that year, cane for the Teesta and Great Rangit bridges was almost unprocurable. Again, the fires on the Rimitti and Tonglo hills, which destroyed the bamboos, have greatly increased the cost of the mats universally used in the hills for roofing purposes. The locality referred to in paragraph 30 of last year's report was visited in the autumn of 1879 by the Inspector-General of Forests in the Officiating Conservator's company, and the whole of the forest from the summit of Tonglo to the police station at Kinjalia was found to have suffered, the thin-barked rhododendrons and oaks having in many cases been completely killed.

33. With the approval of the Commissioner, the paths and pagdandis in the Rangit range of the Teesta Division were closed under section 24 of the Forest Act, good alternative roads having been provided in all the blocks.

34. Under the rules of 28th July 1879, under section 25 (*i*) of the Forest Act, the forests of the Terai and lower hills forming the Kurseong Division were closed by notification of 9th February 1880 against hunting, shooting, and fishing during the dangerous season up to 1st June 1880. The measure worked well and will be extended to the Julpigoree district as well for the season of 1880-81.

4.—Yield and Working of the Forests.

35. The departmental timber operations are thus shown—

(*a*).—*Trees felled during the year.*

	Upper hill trees.	Sál.	Sissu.	Saj.	Others.	Total.
Darjeeling	966	.....	.....	.....	.....	966
Kurseong	408	249	.....	200	167	1,024
Teesta	.....	.....	.....	.....	.....	.....
Julpigoree	.....	252	150	.....	.....	402
Buxa	.....	574	3	.....	326	903
Total ...	1,374	1,075	153	200	493	3,295

(*b*).—*Timber brought to Depôt from the Forests.*

Divisions.	Sál logs.	Sissu logs.	Toon logs.	Saj logs.	Other logs.	Sunderbun timber.	Sleepers.	Other pieces.	Total. No.	Total. Cubic feet.
Darjeeling	.....	.....	.....	.....	.....	.....	.....	741	741	624½
Teesta	60	.....	.....	.....	.....	.....	7	.....	67	1,550
Kurseong	461	.....	.....	29	6	.....	7,475	42	8,033	20,426
Julpigoree	298	.....	1	.....	.....	.....	.....	97	396	5,702
Buxa	1,241	59	.....	.....	.....	.....	17,024	4,670	22,994	70,891
Sunderbuns	.....	.....	.....	.....	.....	91	.....	.....	91	824
Total ...	2,080	59	1	29	6	91	24,506	5,550	32,322	100,017½

Add—

		Mds.	s.
Darjeeling Division ...	Firewood	139,133	30
	Charcoal	12,822	10
Julpigoree	Firewood	145	0
	Total ...	152,101	0

(*c*).—*Transferred from one Depôt to another.*

Divisions.	Sál logs.	Sleepers.	Other pieces.	Total. Number.	Total. Cubic feet.
Teesta	40	.....	.....	40	1,045
Kurseong	113	205	183	501	2,594
Julpigoree	7	.....	.....	7	155
Buxa	289	11,875	184	12,348	26,644
Total ...	449	12,080	367	12,896	30,438

(*d*).—*Timber removed from Depôt by purchasers.*

Divisions.	Sál logs.	Sissu logs.	Toon logs.	Sunderbuns timber.	Sleepers.	Other pieces.	Total. Number.	Total. Cubic feet.
Darjeeling	.....	.....	.....	.....	.....	2	2	9½
Teesta	34	.....	.....	.....	.....	.....	34	894
Kurseong	281	.....	.....	.....	1,725	142	2,150	8,716
Julpigoree	441	.....	1	.....	118	211	771	5,204
Buxa	604	1	.....	.....	11,934	2,675	15,214	37,179
Sunderbuns	.....	.....	.....	65	.....	.....	65	747
Total ...	1,362	1	1	65	13,777	3,030	18,236	52,749½

Add—

		Mds.	S.
Darjeeling Division ...	Firewood	139,133	30
	Charcoal	12,086	30
Julpigoree ...	Firewood	145	0
	Total ...	151,365	2

(e).—Annual Timber Account.

	Pieces.	Cubic feet.		Pieces.	Cubic feet.
Balance in hand at commencement of year	18,132	61,003½	Removed by purchasers	18,236	52,749½
Received from the forest during year ...	32,322	100,017½	Lost and used by the department ...	1,610	2,573
Transferred from one depôt to another ...	12,896	30,438	Cut into sleepers	101	1,353
			Transferred from one depôt to another	12,896	30,438
			Balance at close of year	30,507	104,340½
Total ...	63,350	191,459	Total ...	63,350	191,459

36. The following statement shows the quantity of timber brought to depôt, the amount realized on account of it, and the quantity sold and amount realized during past years:—

Year.	Number of statement.	Brought to Depot.		Number of statement.	Sold.	
		Cubic feet.	Amount paid		Cubic feet.	Amount realized.
			Rs.			Rs.
1874-75	27	58,060	21,748	26	65,917	45,530
1875-76	27	77,207	42,874	26	55,900	49,302
1876-77	58	140,354	76,538	57	59,873	44,915
1877-78	paras. 34-38	106,577	1,34,366	paras. 34-38	101,035	1,70,621
1878-79	pars. 33	78,082	1,20,024	para. 33	93,206	1,86,649
1879-80	.....	100,017	1,03,280	.....	52,749	1,36,464
Total ...	.....	569,287	4,89,430	.....	428,680	6,13,481

showing an average cost of timber brought to depôt during the last six years of Rs. 86 per 100 cubic feet, and average sales of Rs. 143 per 100 cubic feet.

37. Financially, the departmental operations show as follows:—

Divisions.	Quantity sold.	Average amount realized.	Average expenditure, including establishment.	Surplus.	
		Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling	Firewood, charcoal ... 151,220½ mds.	28 9 7	24 11 9	3 13 10	Per 100 mds.
Kurseong	8,716 c. ft.	1 2 10	0 9 1	0 9 9	" c. ft.
Buxa	37,179 "	1 5 3	0 8 1	0 13 2	" "

The works in the Julpigoree Division were very small, and no timber works were undertaken in the rest.

38. Compared with former years, the following table shows the results:—

Name of Division.	Surplus.							
	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	Average.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling	.....	...	...	7 15 4	6 2 3	3 13 10	5 5 10	Per 100 maunds.
Kurseong	0 5 10	0 6 3	0 3 1	0 11 10	0 12 3	0 9 9	0 8 2	" cubic foot.
Buxa	0 5 2	0 9 4	0 8 0	0 5 5	0 11 4	0 13 2	0 8 5	" "

The net surplus therefore of six years' working shows even better than last year, while the general agreement of rates for the Kurseong and Buxa Divisions is maintained.

39. The following figures show the quantities of material removed from the forests by consumers and purchasers:—

Description of Produce.		Darjeeling Division.	Teesta Division.	Kurseong Division.	Julpigoree Division.	Buxa Division.	Palamow Division.	Sunderbans Division.	Chittagong Division and Hill Tracts.	Total.
Green trees ...	Number	1,269	137	458	179	5	.....	.....	5,402	7,450
	Maunds	.....	.....	.....	.....	.....	.....	1,941,886	.....	1,941,886
Timber in boats		.....	.....	.....	.....	.....	.....	.....	2,512	2,512
Ditto planks, &c.		.....	.....	.....	.....	.....	.....	.....	9,901	9,901
Saplings		37	.....	.....	.....	.....	.....	.....	157	194
Sticks		1,000	.....	.....	.....	.....	.....	.....	.....	1,000
Dry trees ...	Number	.....	54	360	1,059	2,518	207	.....	.....	4,798
	Cubic feet... ..	3,550	.....	.....	.....	.....	.....	.....	94	3,644
Sleepers		.....	.....	31	.....	.....	.....	.....	.....	31
House posts		.....	.....	.....	.....	.....	.....	.....	25	25
Firewood ...	Tickets	14½	2	12	.....	.....	.....	.....	.....	28½
	Carts	.....	.....	95	.....	77	.....	.....	.....	172
	Loads	.....	.....	892	.....	.....	100	.....	.....	992
	Maunds	1,350	8	26,504	.....	.....	.....	5,723,051	.....	5,750,913
Bamboos	Number	2,450	46,452	31,725	800	1,700	.....	.....	15,196,079	15,279,206
	Permits	179½	.....	.....	.....	.....	.....	.....	.....	179½
Grazing	Head of cattle ...	5,810	437	7,174	5,601	1,924	5,070	.....	.....	26,016
	Tickets	924	43	886	.....	.....	.....	.....	.....	1,853
	Fodder bundle ...	.....	.....	.....	.....	3,455	.....	.....	.....	3,455
Canes	Tickets	11½	.....	1	31	.....	.....	.....	.....	43½
	Number	.....	.....	.....	.....	.....	.....	.....	3,188,316	3,188,316
	Loads	.....	50	254	.....	.....	.....	.....	.....	304
	Maunds	.....	.....	.....	.....	.....	.....	4,905	.....	4,905
Thatch-grass ...	Loads	.....	5,510	26,911	.....	.....	.....	.....	5,053,019	5,085,440
	Rupees	.....	.....	.....	.....	.....	Rs. 2-4	.....	.....	Rs. 2-4
Lime	Maunds	.....	200	.....	.....	60	.....	.....	.....	260
Earth	Permits	.....	1	1	.....	.....	.....	.....	.....	2
Shells	... ...	.....	.....	.....	.....	.....	.....	418	.....	418
Mango fruits ...	Rupees	.....	.....	.....	.....	.....	Rs. 1	.....	.....	Rs. 1
Mowah flowers ...	"	.....	.....	.....	.....	.....	Rs. 230	.....	.....	Rs. 230
Golpatta ...	... ...	.....	.....	.....	.....	.....	.....	7,486½	.....	7,486½
Null ...	... ...	.....	.....	.....	.....	.....	.....	510	.....	510
Hital ...	... ...	.....	.....	.....	.....	.....	.....	265	.....	265
Wax and honey ...	Permits	.....	.....	.....	.....	.....	.....	126	.....	126
Gurjun oil	Maunds	.....	.....	.....	.....	.....	.....	.....	512	512
Bark	Loads	.....	16	.....	.....	.....	.....	.....	.....	16
	Maunds	.....	.....	.....	.....	.....	.....	1,172	.....	1,172
Leaves, ...	Maunds	.....	192	.....	.....	.....	.....	.....	.....	192
Chaulmugri oil, ...	"	.....	.....	.....	.....	.....	.....	.....	20	20

5.—Financial Results.

40. The financial results of the department since 1871 compare as follows:—

Years.	Receipts.	Charges.	Surplus.	Area of reserved forests.
	Rs.	Rs.	Rs.	S. miles.
1871-72	87,260	67,506	19,754	106
1872-73	1,16,690	62,554	54,136	106
1873-74	1,23,732	81,068	42,664	120
1874-75	1,85,914	98,654	87,260	1,467
1875-76	1,98,274	1,39,086	59,188	2,585
1876-77	2,22,401	2,11,689	10,712	3,390
1877-78	4,32,363	2,61,112	1,71,251	3,434
1878-79	4,16,027	3,38,675	77,352	2,967
1879-80	4,49,524	2,75,748	1,73,776	2,945
Total ..	22,32,185	15,36,092	6,96,093	.....
Average of nine years ...	2,48,020	1,70,677	77,348	.....

showing an increase in revenue and decrease in expenditure over the figures of last year. If the extraordinary expenditure of 1878-79 is, however, deducted, the figures for the last three years will be found to differ very little. The revenue was chiefly increased by the collections in the protected forests of the Sunderbans and by a good season in the Chittagong Hill Tracts, while they were reduced by the reductions in Public Works expenditure causing the cancelment of indents and the requirement of less timber than had been expected. The value of stock on hand has increased by Rs. 61,931, making the value of the year's transactions Rs. 2,35,707.

41. The following table gives the distribution of the receipts and charges of the year under the three great heads :—

	Departmental timber operations.	Other revenue.	Formation, protection and improvement of forests.	TOTAL.
	Rs.	Rs.	Rs.	Rs.
Receipts	1,36,464	3,13,060	.....	4,49,524
Expenditure—				
A I	65,112	.....	.....	.....
" II	.....	24,440	.....	.....
" III	88	7	.....	.....
" VI	4,127	4,127	4,126	.....
" VII	.....	.....	17,787	.....
" VIII	.....	.....	28,887	.....
" IX	.....	910	.....	.....
B. Direction	7,814	7,814	7,815	.....
B. 1st five divisions	26,367	13,183	13,184	.....
B. Remaining "	.....	24,980	24,980	.....
Total ...	1,03,508	75,461	96,779	2,75,748
Surplus ...	32,956	2,37,599	.....	.....
Deficit ...	.....	.....	96,779	.....
Net surplus ...	.....	.....	.....	1,73,776

The table is constructed on the plan commenced last year, and which was accepted by the Government of India as a fair representation of financial results. The figures show a surplus of 39 per cent of gross receipts, which is a larger percentage than last year, and must be considered satisfactory. The average percentage for the last nine years has been 31 per cent.

42. The receipts and expenditure on account of the reserved, protected, and unreserved forests taken separately are given in the following table :—

DIVISIONS.	RESERVED FORESTS.			PROTECTED FORESTS.			UNRESERVED FORESTS.		
	Receipts.	Charges.	Surplus or deficit.	Receipts.	Charges	Surplus or deficit.	Receipts.	Charges.	Surplus or deficit.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Darjeeling Division	68,502	49,782	+18,780	.....	.....	.....	.....	.....	.....
Teesta	6,045	16,988	—11,943	.....	.....	.....	.....	.....	.....
Kurseong	40,047	30,354	+9,693	.....	.....	.....	.....	.....	.....
Julpigoree	10,417	11,594	—1,177	.....	.....	.....	.....	.....	.....
Buxa	64,351	56,088	+8,263	.....	.....	.....	.....	.....	.....
Pulamow	1,097	11,978	—10,881	.....	.....	.....	.....	.....	.....
Hazaribagh	41	4,230	—4,189	.....	.....	.....	.....	.....	.....
Sunderbuns	1,87,324	37,720	+1,49,604	12,124	6,744	+5,380	.....	.....	.....
Chittagong	2,204	19,411	—17,207	.....	.....	.....	.....	.....	.....
Chittagong Hill Tracts	.....	.....	.....	.....	.....	.....	58,246	7,415	+50,831
Direction	65	20,838	—20,773	.....	2,605	—2,605	.....	.....	.....
Total ...	3,79,153	2,58,983	+1,20,170	12,124	9,349	+2,775	58,246	7,415	+50,831

The gross receipts calculated on 2,945 square miles of reserved forest are therefore Rs. 128, but, as was pointed out last year, the area to which the transactions relate was really much larger; and assuming, as the Government of India then did, that these transactions referred to 3,500 square miles, the gross receipts per square mile are Rs. 108, or Re. 1 less than last year.

SECTION II.—RESERVED FORESTS.

A.—DARJEELING DIVISION.

1.—AREA AND BOUNDARIES.

43. (*a*)—*Area.*—Very little alteration in area has been made since last year's report. During the progress of demarcation work in the Goompahar Range, an area of 710 acres, partly to the south in the Balasun Valley, partly to the north between the Chongtong and Lainkoop spurs, was added in rectification of the boundary lines.

44. In paragraph 64 of last year's report, it was stated that a portion of the area of the Teesta Division, amounting to 2,886 acres, was omitted

from the statement appended to the annual report of 1877-78. It has now been ascertained that this area was included in the Darjeeling Division. This was due to the fact that, when the areas were ascertained by reference to the 4-inch revenue survey maps, the sheet containing the Teesta forests contained also a portion of the Darjeeling forest area, and in taking the area it was all included in the latter, instead of in the former division. The excess amount of 2,951 acres has now been deducted from the Tukdah Range, making the return correct for both divisions.

45. In a notification in the *Calcutta Gazette* dated 18th October 1879, it was proposed, under section 4 of the Forest Act, to reserve the Pugraingbong forest, containing about 435 acres, as an addition to the Goompahar reserve. All the necessary arrangements under Chapter II of the Forest Act have now been completed with regard to this forest, and the final notification under section 19 will probably very shortly issue.

46. Negotiations are in progress with the Darjeeling Municipality for the working by the department of a further area of about 1,000 acres of forest land which still remained in their possession at Goompahar after the transfer of the lands referred to in paragraph 40 of last year's report. The addition of this area will make an important increase to the extent of forest land available for station fuel and timber supply, while full arrangements will be entered into to ensure reproduction.

47. As already stated in paragraph 6 of section I, an area of about 2,750 acres will be transferred from the Cinchona to the Forest Department, and the area of the division will then be as follows:—

	At present. Acres.	Probable addition Acres.	Total. Acres.
Rangbul Range	5,687	.....	5,687
Tukdah "	7,516	2,750	10,266
Goompahar "	8,148	1,435	9,583
Total ...	21,351	4,185	25,536

48. These three ranges at present constitute the Darjeeling Forest Division, and they are divided as follows into blocks, one or more of these blocks forming the protective charge or beat of a forest guard :—

Blocks.	Beats
Rangbul Range—	
Rangbul	1
Dooteria	2
Sonada	3
Chuttockpore	4
Sepoydura	5
Tukdah Range—	
Senchul	6
Rangirúm	7
Poomong	8
Tukdah, Hoom	9
Rangbi	10
Goompahar Range—	
Rishihat, Chongtong	11
Poobong, Balasun, Palungdong	12
Pugraingbong, Rungbong	13
Purmaygiri	14

49. The arrangement of block boundaries has been settled chiefly with a view to keeping separate the portions which are worked separately and to concentration of work. These boundaries are usually natural features, such as ridges or streams or roads, and the crests of the three main hill ranges are retained as important block boundary lines. A map of the division on the scale of one inch to a mile has recently been prepared by the Superintendent

of Forest Surveys, and on it the blocks are shown separately. The final completion of demarcation work will slightly alter the lines as therein given, but not to any very important extent.

50. (*b*)—*Demarcation.*—Progress in such work as demarcation in the Darjeeling Hills is chiefly dependent on the weather, for during a great portion even of the fine season the forests are enveloped in mist, and surveying and the cutting of lines is difficult. This was the case in the year under review, and in some cases, too, disputes have arisen regarding the boundaries requiring the decision of survey and settlement officers, and these reasons together account for the work being still uncompleted, though in a fair way to speedy settlement.

51. In the *Rangbul Range* the whole of the boundaries, including those of the locations on the Hill Cart Road, have been completed, the only piece still remaining being the boundary line of the old barracks at Sonada, which is difficult to lay down, as it is not shown on the district maps. In the *Goompahar Range* it was expected that the whole work would have been completed early in the season, but the state of the weather and boundary disputes prevented this, and there still remain small portions both to the north and south, which have yet to be laid down.

2.—Protection and Improvement.

52. (*a*)—*Establishment.*—This consisted of the following on 1st April 1880:—

Rangbul Range—
- 1 Forest Ranger.
- 1 Forester.
- 5 Forest guards.

Tukdah Range—
- 1 Sub-Assistant Conservator.
- 1 Forester.
- 5 Forest guards.

Goompahar Range—
- 1 Forest ranger.
- 4 Forest guards.

53. (*b*)—*Breaches of Forest Rules.*—The year under review shows an increase in prosecutions in 1878-79, a considerable proportion being on account of lighting fires in the forest during the dry weather of April 1879, and in the late cold season.

There were 16 cases involving 22 persons, and convictions were obtained in every case.

54. (*c*)—*Roads and Bridges.*—The cart road from the Goompahar village to the forest boundary was completed during the year from provincial funds, and has already begun to prove its utility. Its gradual extension towards the frontier will be continued as funds permit, and on the completion of the Darjeeling Tramway, it may be found possible to connect Goompahar forest with the tramway by a branch line, so rendering the extraction of timber and fuel from the Goompahar forest for station supply an easier matter than at present, and bringing into working some of the blocks which are now too distant and have communications too difficult.

55. The deviation between the fourth and sixth miles of the road to the Teesta *viâ* Pashok was nearly completed at a cost of Rs. 1,500 before December 1879, when the whole road was transferred to the charge of the Public Works Department. While in charge of the Teesta road, the divisional officer had to undertake considerable repairs and build some large revetments. The conversion of this into a carting road would be a most useful work, but the great difficulty of the first mile, where it passes round the steep rocky side of the Senchul mountain, may prevent its being carried out as yet.

56. (*d*)—*Buildings.*—The rest-house at Tukdah, whose construction was ordered by the Lieutenant-Governor, was commenced during the year, and has since its close been nearly completed. The site chosen was the edge of the forest above the Lopchu Tea Garden, and the cost will be Rs. 1,500 exclusive of the value of the timber but including furniture. A fuel godown is also in

course of construction at Kurseong for the reception of firewood and charcoal for the bazar supply of that station.

57. *(e)—Reproductive Measures, Rangbul Range.*—Compartment 8 of the Rangbul block, planted in 1878-79, 40 acres has continued to do well, though some damage was done in parts by cattle breaking through the fences and grazing at night. Compartment 7, referred to in paragraph 52 of last year's report, was, as therein described, sown at stake, though the germination of oak and magnolia was not good. Since that report was written, some of the oak have appeared, and the vacancies were filled up with maple seedlings, a number of better class trees, especially cypress, cryptomeria, oak and deodar being put in, in lines 20 feet apart. The maple seedlings, which were perhaps too small, did not do as well as was expected; and it will be best in future, judging from the experience gained, not to put out transplants in the hills until they are of some size, and strong enough to resist the jungle growth and the difficult climate of great damp at one season, and often great dryness at another. In the nurseries in the Rangbul block there are now ready about 16,000 seedlings, principally oak, chestnut, and magnolia, but they will not be ready for putting out before 1881 at the earliest. These nurseries will not be further used when these plants have been put out.

58. In the *Dooteria block*, compartment 1, extending from the Bing Jhora to the spur south of the Ranger's house, and containing about 44 acres, was planted up with young maple in the upper, and toon in the lower portion; but as in the case of the Rangbul block, it was found that the seedlings were too small and were not very successful. The nurseries in the Dooteria block were well stocked, and we have now about 57,000 seedlings of 1879 sowings, as well as the beds sown in 1880, the plants in which are coming up well. The chief plants in the nurseries are oak, pipli, toon and wattles, and the new sowings were of walnut, oak, cypress and magnolia.

The Inspector-General visited these plantations during the year, and under his advice it is proposed to abandon the present system of area planting, and in future plant in lines cleared through the area to be planted some 20 to 30 feet apart.

59. In the *Sepoydura block* two nurseries were made and filled chiefly with toon, and 14 acres were planted up with seedlings. They are doing well. There are now in the nurseries about a lakh of toon seedlings and 1,500 wattles.

60. The expenditure in the Rangbul Range has not been heavy—

	Rs.
Rangbul block	873
Dooteria „	632
Sepoydura „	202
Total ...	1,707

when it is considered that there is now in stock a large number of plants available for planting during the present and next year. One of the difficulties of planting in the hills is that seed cannot be depended on. In 1878 the oaks seeded well, but in 1879 there were no acorns and the trees have not flowered this spring, so there is little hope of acorns in 1880. The chestnuts, magnolia, pipli and toon, however, flower almost every year, and the crop of seed would always be good, if it was only less liable to be worm-eaten. Last year, however, chestnut and even maple seed were very scarce.

61. *Tukdah Range.*—In the *Rangirúm block* planting was continued over 23 acres which were filled with toon, pipli and wattles. The pipli, which were large plants, have done well, and the toon, though the plants were too small, have yet stood the hot weather fairly. The wattles did not thrive; they do not bear transplanting well, though their growth in the nurseries below 7,000 feet is usually very good. The nurseries in this and the *Senchul block* contain a very large number of toon seedlings, about 16,000 pipli, and a number of wattles and *Pinus longifolia.*

62. In the *Poomong block* toon and pipli seedlings were dibbled in the 3 acres cleared last year for charcoal; they will supplement the natural growth of maples, *Evodia* and other trees which in this block has come up well.

63. *Goompahar Range.*—The nurseries in the *Poobong block* have not done very well, but there are a number of oak and other seedlings ready for the planting works which will succeed the working of this range for fuel. Their number can easily be increased by transfers from the Rangbul Range.

64. (*f*)—*Fire protection.*—Owing to the heavy winter rains no fires occurred in the Darjeeling Division in 1879-80. Regulations regarding camping grounds were, however, put in force and with some success. The divisional officer thinks that, another year, travellers will quite learn the regulations and camp only at the authorized places, which have been instituted at convenient sites along the main roads.

3.—Yield and Working.

65. The fuel operations of the year were continued in the Dooteria block principally, but a small quantity was also cut in the Poobong block of the Goompahar Range, and dry wood was extracted from the Senchul block of the Tukdah Range. The Poomong block of that range was also worked for the supply of charcoal to the Giello Tea Estate.

66. The trees cut by Government agency are shown in return No. 53 attached to this report; the full data for Dooteria has not yet been obtained, as the fellings in it were not completed. With greater economy in the utilization of branches, stumps, and roots, the number of trees felled has not been nearly so great in proportion as in former years.

67. The supply of the station of Kurseong was also commenced by the cutting and delivery of dry wood from the Sepoydura block. The commencement of this supply was found necessary in order to stop waste, as trees used to be purchased, trees which were good for sawing, and cut up and sold as firewood. The stoppage of this system will be a great benefit, as, in consequence of the demands of the Tramway Company, the supply of scantling-giving trees of good kinds is becoming somewhat scarce.

68. The fellings for scantlings, firewood, and charcoal were—

	Trees.
Rangbul Range—	
Dooteria block	127 firewood. 322 charcoal.
Tukdah Range—	
Senchul block	73 firewood (dry or broken trees only).
Poomong „	89 charcoal.
Goompahar Range—	
Poobong block	57 firewood.
Rishihat „	1 scantling.
Total	669

69. The following quantities of timber, firewood, and charcoal were brought to depôt during the year :—

	No.	c. ft.
Scantlings	741	614¼
		Mds.
Firewood		1,39,134
Charcoal		12,822
Total ...		1,51,956

70. The sales of firewood and charcoal were as follow :—

Firewood.

	Mds.
To the Public Works Department	7,554
Commissariat „	45,822
residents of Darjeeling, Jellapahar, and Jor Bungalow	85,757
Total Firewood ...	1,39,133

Charcoal.

		Mds.
To the Manager,	Emerald Bank Tea Estate	250
Ditto,	Gielle Tea Estate	1,116
Ditto,	Public Works Department	100
Do.	residents of Darjeeling, Jellapahar, and Jor Bungalow	10,620¾
	Total Charcoal ...	12,086¾

71. The financial aspect of the firewood and charcoal operations is exhibited thus—

	Rs.	A.	P.	
1,51,220 maunds sold, realized on an average ...	28	9	7	per 100 maunds.
Expenditure, including share of establishment on 1,51,956 maunds brought to depôt... ...	24	11	9	ditto.
Surplus	3	13	10	

The falling off is due to the establishment and other charges being heavy in proportion to the amount sold. The falling off in sales was due to the competition of the municipality, competition which has now ceased.

72. The number of trees and other produce removed by purchasers during the year is thus exhibited—

Name of Produce.	Number.	Amount.			Rate.			Remarks.
Timber.		Rs.	A.	P.	Rs	A.	P.	
Green trees ... Champ	99	2,475	0	0	25	0	0	
Toon	1	25	0	0	25	0	0	
Booke	487	7,305	0	0	15	0	0	
Phalat	5	75	0	0	15	0	0	
Katus	466	6,990	0	0	15	0	0	
Pipli	23	345	0	0	15	0	0	
Lali	55	550	0	0	10	0	0	
Kaula	41	410	0	0	10	0	0	
Lepochaphal	11	110	0	0	10	0	0	
Kabashi	7	70	0	0	10	0	0	
Gobria	15	150	0	0	10	0	0	
Chilauni	51	510	0	0	10	0	0	
Champ	1	12	8	0	12	8	0	
Katus	4	30	0	0	7	8	0	
Booke	1	7	8	0	7	8	0	
Pipli	1	7	8	0	7	8	0	
Lali	1	5	0	0	5	0	0	
Kharani saplings	30	35	0	0	1	2	8	
Dudela "	2	5	0	0	2	8	0	
Other "	5	12	8	0	2	8	0	
Bramble sticks	1,000	1	1	6	0	1	9	per 100
Dry timber ... Champ logs	c. ft. 1,295¼	323	14	0	0	4	0	per c. ft.
Booke "	" 458½	85	13	6	0	3	0	do.
Katus "	" 1,414¾	265	4	6	0	3	0	do.
Pipli	" 165	30	15	0	0	3	0	do.
Lali	" 157½	20	11	0	0	2	6	do.
Kabashi	" 27	3	6	0	0	2	6	do.
Chilauni	" 32	5	0	0	0	2	6	do.
Total of II*a*. ...	.....	10,866	1	6				
Firewood.								
Firewood ... ... Mds.	1,350	67	8	0	5	0	0	per 100
Do. ... ... Tickets.	14½	72	8	0	5	0	0	
Total of II*b*. ...	.....	140	0	0				
Bamboos.								
Bamboos	2,450	12	4	0	0	8	0	per 100
Do. ... ... Tickets.	179½	359	0	0	2	0	0	
Total of II*c*. ...	.....	371	4	0				
Grazing and Fodder Grass.								
Head of cattle	5,802	2,901	0	0	0	8	0	per head.
Do. sheep	8	1	0	0	0	2	0	Ditto.
Tickets for bamboo leaves	924	462	0	0	0	8	0	
Total of II*d*. ...	.....	3,364	0	0				
Other minor produce.								
Cane tickets	11½	69	0	0	6	0	0	
Total of II*e*. ...	.....	69	0	0				
Grand Total II ...	.....	23,810	5	6				

73. The increase in the sales of dry wood in log in the forest is an evidence of the scarcity of trees fit for building purposes in the blocks nearest to the station, as the timber dealers prefer now to buy dry fallen wood, which formerly they refused, to going greater distances in search of green trees. The large sales of oak and chestnut (*Booke* and *katus*) were chiefly to the Darjeeling Steam Tramway Company. After the inspection of the division by the Inspector-General of Forests, a preliminary plan of operations was drawn up with his assistance, and this will make the working of the forests even more systematic than it has hitherto been. There has been a slight falling off in revenue from grazing; this is due to the number of cattle having decreased, to the undoubted benefit of the forests.

4.—Financial Results.

74. The actuals for the year arranged under main heads in the same way as in paragraph 41 are —

	Receipts	Charges.	Surplus.	Deficit.
	Rs	Rs.	Rs.	Rs.
1. Departmental timber operations	43,254	37,584	5,670	.....
2. Other revenue	25,308	4,155	21,163	.....
3. Formation, protection and improvement of forests	... .	8,043	.....	8,043
Total ...	68,562	49,782	26,823	8,043

The area of the division being taken at 21,351 acres, it follows that the surplus revenue per acre has been annas 14-1, or Rs. 560 per square mile. This is an improvement on last year, even if the results of that year are calculated on a corrected acreage.

B.—TEESTA DIVISION.

1.—Area and Boundaries.

75. (*a*)—*Area.*—No alteration has taken place since last year, as the arrangements under the Forest Act for the final reservation of the forests gazetted in notification of 28th July 1878, and referred to in paragraph 65 of last year's report, have not been yet completed. It is hoped that, at any rate for the forests whose demarcation has been finally completed, very little further delay will take place, and that before the end of 1880-81 the greater part at least will be finally reserved.

76. As at present constituted, the forests of the Teesta Division have been divided into five ranges, but of these only the first is separated into blocks for working purposes. In the rest the names of the forests are given The protective charges or beats of forest guards are shown below :—

Blocks or Forests.	Beats.
Rangit Range—	
Badamtam	1
Sumbong, Seem Jhora	2
Pashok	3
Mangwa, Sadyeang	4
Geeljong, Reyang	5
Kalimpung Range—	
Kalimpung	6
Dumsong	7
Punboo	8
Tunang	9
Chel Range	10-13
Daling „	14-19

77. (*b*)—*Demarcation.*—The boundaries of the old reserves have all been cleared of jungle at a cost of Rs. 1,289-11-6, or Rs. 10-4-9 per mile. The boundaries of some of the old reserves in the Rangit Range, west of the Teesta, where the lines were only rather roughly demarcated, are in course of revision

with the assistance of the survey officers. That of the Badamtam block has been completed.

78. In paragraph 67 of last year's report, it was stated that the following blocks of the new proposed reserves had been demarcated :—

1. The Teesta Chel block.
2. „ Jeet and Cheechu „
3. „ Rushett (part) „
4. „ Nar „ „
5. „ Suckain „

Since then almost all the rest have been completed, but as the block boundaries often touch each other, and the lines to be demarcated are not all completely finished, the addition cannot well be made in area.

79. The forest settlement officer is, it is believed, engaged in defining the boundaries of the large villages of Gurubatan and Mangshing which are to be excluded from the reserves. The southern boundary of these forests, as demarcated, will, it is understood, be to a great extent taken as the new district boundary between Darjeeling and Julpigoree. It has all been properly cleared and demarcated. On the suggestion of the forest settlement officer, the southern boundary of the Suckain block has been altered much further to the north, leaving out the lands of Rangamati and Buthagol, which it was intended to lease in tea locations. The new boundary will be a convenient one, and one which will not be likely to be ever mistaken.

2.—Protection and Improvement.

80. (*a*)—*Establishments.*—At present this consists of the following :—

Rangit Range—
- 1 Forester.
- 5 Forest guards.
- 1 Peon.

Kalimpung Range—
- 1 Forester.
- 4 Forest guards.

Chel Range—
- 1 Forester.
- 4 Forest guards.
- 1 Peon.

Daling and Laba Range—
- 1 Forester.
- 6 Forest guards.

But the establishment will probably be slightly altered or re-distributed with the re-distribution of ranges which is contemplated, and which was recommended by the Inspector-General.

81. (*b*)—*Breaches of Forest Rules.*—Three cases were instituted, involving five people. In two cases convictions were obtained ; in the third, the offender escaped from the police before trial.

82. (*c*)—*Roads and Bridges.*—The roads in the Rangit Range were repaired, and in addition to the main roads to Darjeeling from the Teesta through Pashok, and from the Great Rangit through Badamtam, paths were made in the Mangwa and Geeljong forests, and from Pashok to the Great Rangit, so that the range is well supplied with roads, and it has been found possible to close by notification, with the approval of the Commissioner, the small paths through the forest used by travellers and so dangerous in the fire season. A commencement has been made to join Kalimpung with the plains by a road across the Rilli Valley over Songchongloo ridge to Chunbati on the Leesh river. About eight miles of this road have been completed at a cost of Rs. 45 per mile.

83. (*d*)—*Buildings.*—The divisional head-quarters bungalow was completed at a cost of Rs. 3,562, being Rs. 1,062 in excess of estimates. The divisional officer states that the excess is due to the difficulty in making proper estimates in a distant place like Kalimpung, and this plea may perhaps be accepted.

84. (*e*)—*Fire protection.*—As in most other divisions, the year was a very favourable one for fire protection works. None occurred in the upper hill forests, and in the others the protective measures were successful. Protection was

commenced in the Rangit, Kalimpung and Chel Ranges, the chief features of the protection works being the institution of fixed camping grounds along main roads, the clearing of broad boundary lines to serve as fire-belts, and the entertainment of fire-watchers. The success of the present year cannot be taken as a criterion of the divisional officer's good arrangements. It remains to be seen whether we shall be successful in a bad season like that of 1879, but more detailed measures will another year have to be undertaken and constant watch kept; for in some of the forests of the Teesta Valley and front face of the hills, especially on dry southern slopes, fires spread with the greatest rapidity and are sometimes more difficult to prevent and stop than similar fires in the level forests of the Terai and Duars. One fire occurred in the Kalimpung Range and several in the Chel Range, but they were checked and extinguished before they had spread very far.

3.—Yield and Working.

85. No fellings were made by the department during the year.
The following quantity of timber was taken to depôt at Phulbari:—

	No.	C. ft.
Sál logs	60	1,527
„ b g sleepers	7	23
Total ...	67	1,550

And the following were transferred to the head depôt at Julpigoree:—

	Logs.	C. ft.
From Phulbari	40	1,045

The sales from depôts consisted of 34 logs containing 894 c. ft.

86. The following statement shows the produce removed by purchasers from the forests:—

Name of Produce.		Number.	Amount.			Rate.			Remarks.
Timber.			Rs.	A.	P.	Rs.	A.	P.	
Green trees	Champ	6	150	0	0	25	0	0	
	Toon	15½	387	8	0	25	0	0	
	Sál	81	1,620	0	0	20	0	0	
	Simul	8	120	0	0	15	0	0	
	Lampatia	2	30	0	0	15	0	0	
	Goguldhup	3	30	0	0	10	0	0	
	Gambari	1	10	0	0	10	0	0	
	Mallagiri	1	10	0	0	10	0	0	
	Arkoulo	1	10	0	0	10	0	0	
	Khair	1	10	0	0	10	0	0	
	Taki	8	80	0	0	10	0	0	
	Bolay	4	40	0	0	10	0	0	
	Bahera	2	20	0	0	10	0	0	
	Kuttal	1	10	0	0	10	0	0	
	Udal	2	20	0	0	10	0	0	
	Patpati	1	10	0	0	10	0	0	
Dry trees	Sál jhanjies under 2 feet	29	14	8	0	0	8	0	
	Ditto ditto 3 „	10	15	0	0	1	8	0	
	Ditto ditto 4 „	10	30	0	0	3	0	0	
	Ditto ditto 5 „	5	30	0	0	6	0	0	
	Total of II*a* ...	.....	2,047	0	0	.....			
Firewood.									
Firewood, maunds		8	0	8	0	0	1	0	
Ditto, tickets		2	10	0	0	5	0	0	
	Total of II*b* ...	.....	10	8	0	.....			
Bamboos.									
Bamboos		46,452	464	8	5	1	0	0	per 100
	Total of II*c* ...	.....	464	8	5	.....			

Name of Produce.	Number.	Amount.	Rate.	Remarks.
Grazing and Fodder Grass.		Rs. A. P.	Rs. A. P.	
Head of buffaloes	252	47 4 0	0 3 0	
Do. of other cattle	185	23 2 0	0 2 0	
Tickets for grass	43	21 8 0	0 8 0	
Total of II*d* ...	.....	91 14 0	.....	
Other minor produce.				
Thatch grass, loads	5,519	86 3 9	0 0 3	
Dry leaves	192	3 0 0	0 0 3	
Earth, permit	1	5 0 0	.....	
Canes, loads	50	12 8 0	0 4 0	
Lime, maunds	200	37 8 0	0 3 0	
Rungbong bark, loads	16	1 0 0	0 1 0	
Minor produce, general	.....	60 0 0	... ..	
Saw-pit wood	.....	2 12 0	. ..	
Total of II*e* ...	.....	207 15 9	.....	
Grand Total II ...	.....	3,421 14 2	.....	

showing an increase of nearly double the collections of last year. This is chiefly due to the extension of tea cultivation in the Duars immediately south of the reserves.

87. An attempt was made to commence again, on a systematic plan, by working ranges in rotation, the collection of India-rubber. The tapping was made in the Rangit Range, but proved a failure, the result of the tapping being in most cases the withering of the leading shoots of the trees. This shows that the trees have not yet recovered from the tappings made six years ago, which resulted in the death of a large proportion of the India-rubber trees in the district. The trees may not be so hardy as in Assam, as this is the extreme west of the range of *Ficus elastica*; but at any rate this year's experiment points out that the greatest care will have to be taken whenever plantations are made or systematic collection is carried on: for in this case heavy tapping during three successive years not only killed a large proportion of trees, but injured the rest so that even after six years' rest no further collection could again be made.

4.—Financial Results.

88. These have not been as satisfactory as the Officiating Conservator had hoped. There was a slight increase in revenue, and a similar increase in expenditure, so that the deficit was even greater than last year. The actuals were—

		Rs.		Rs.
Receipts		... ..	...	5,045
Expenditure	A	7,242	...	16,988
	B	9,746		
		Deficit	...	11,943

C.—KURSEONG DIVISION.

1.—Area and Boundaries.

89. (*a*)—*Area.*—No alteration in area was made during the year.

90. By a notification dated 18th October 1879, it was proposed, under section 4 of the Indian Forest Act, to reserve the lands purchased from Mr. Lloyd and others in the Darjeeling Terai referred to in paragraph 81 of the report for 1877-78, and paragraph 82 of last year's report, as well as the Babookhola and Mamring forests in the hills. The areas so proposed to be reserved were—

(1) *The Mamring Forest.*—An addition to the Sukna forest on the plains side of the Sitong-Mahalderam ridge along the Mana Jhora.

(2) *The Babookhola Forest.*—An area of land at the head waters of the Mahanadi river, sometimes called 'Captain Cornish's Block,' and running up to the same ridge. This is a fine piece of

hill forest, but it has been a good deal damaged by graziers and will now require rest.

(3) *Tookria Jhar Forest.*—A fine piece of sál forest, south of Naksarbari, in the Darjeeling Terai.

(4) *Nipania Forest.*—An addition to the Mochi forest, containing sissu, khair and mixed forest.

(5) *Gurabadi Block.*—An addition to, though somewhat separated from, the Mochi forest, containing sissu and khair.

(6) *The Moolta Forest.*—

(7) *The Bengdubi Forest.*—

(8) *The jotes Kishabari, Major Wardroper's, and Kanu Chowdry's Bhita.*—All additions to the Dalka Jhar reserve and containing chiefly fine sál forest with a small portion of mixed forest near the Balasun river.

(9) The *Shilibhita jote*, an addition to the Sukna-Teesta forest.

These areas are under settlement under C II of the Forest Act, and are now ready to be gazetted finally as forest reserves under section 19. They will add an area of 8,184 acres to the area of reserved forest in the division, as explained in paragraph 83 of last year's report.

91. The Kurseong Division has been divided into four ranges, and these ranges into blocks, one or more blocks forming a protective charge or beat.

These divisions are—

Blocks.	Beats.
Kurseong Range—	
Dhobijhora	1
Babookhola	2
Sibakhola	3
Balasun Range—	
Manjua	4
Merig	
Khyrbani	5
Koohein	
Mechi	6
Lohagarhi	7
Manjha	
Balasun	8
Dulka Jhar, East	9
" " West	10
Tookria Jhar	11
Bamunpokri Range—	
Bamunpokri	12
Rakti	
Lama Gumba	13
Sukna Range—	
Kooklong	14
Rungdung	
Chamta	
Sukna	15
Poondig	
Moorgong	
Mahanadi	
Champasari	16
Gulma	
Sivoke	17
Shummur Danga	
Latpanchor and Goramara Hills	18, 19

These last beats contain a large area, which at present requires much less supervision, and is not finally divided into blocks.

92. The *blocks* as now constituted do not correspond with the *forests* as given in form 45. These latter are merely the forests as given in the district revenue lists, but for administrative purposes they are sometimes inconvenient, and as in many cases they adjoin each other, they are now re-divided into more convenient divisions with more nearly equal areas.

93. (*b*)—*Demarcation.*—In paragraph 85 of last year's report, it was stated that the four forests of Manjua, Dhobijhora, Sibakhola, and Merig were the only forests which remained on 1st April 1879 for demarcation. It

was expected that the survey party would have laid down these boundaries during the year, but they did not commence work till after the end of the cold season, so that the forests still remain to be done. The *Manjua* boundary has at any rate been so far completed that arrangements for the final demarcation are now in progress. It was found that the Singballi Murma Tea Company had encroached to the extent of 135 acres on the forest area. A satisfactory arrangement has, however, been arrived at, by which the company give up an equal area in similar forest land, also adjoining the reserve, in exchange for the part encroached upon. An arrangement for the rectification and improvement of the boundaries of the *Manjha* forest is also being made in communication with the Indian Terai Tea Company.

2.—PROTECTION AND IMPROVEMENT.

94. (*a*)—*Establishments.*—The following was the strength on the 31st March 1880:—

Kurseong Range—
1 Forester.
3 Forest guards.
Balasun Range—
1 Forest ranger.
8 Forest guards.
Bamunpokri Range—
1 Forester.
2 Forest guards.
Sukna Range—
1 Forester.
6 Forest guards.
1 Depôt peon.

95. (*b*)—*Breaches of Forest Rules.*—Only one case, involving two persons, was instituted; conviction being obtained. This case was that of the manager of a Terai tea garden for deliberately setting fire to the forest reserve. The case was unusual, as in most parts of our forest boundaries in this and other divisions, where tea gardens adjoin the forests, the planters have generally of late assisted us in arranging for protection from fire, protection which is important to them as well as to the department. In the Kurseong Division particularly, some planters, by lending their aid to form mutual fire protection belts, have given us very material assistance this year.

96. (*c*)—*Roads and Bridges.*—Existing roads have been cleared and repaired, as also the block traces in the Dulka Jhar reserve.

The bridle path from Latpanchor to Sivoke has been completed throughout. This most useful path, together with that from the Mahanadi to Bereikh on the Teesta, which joins it at Latpanchor, and the branch from Sitong along the Mana ridge towards Kurseong, now form a most useful network of roads to open up the formerly pathless tract of hill forest between the Mahanadi and Teesta rivers. Besides this path, the following have been made or cleared in different parts of the division:—

In the *Balasun Range*—

(2)—The road from Panighatta to the Chenga river, forming the southern boundary of the Manjha forest, has been repaired.

In the *Bamunpokri Range*—

(3)—The bridle paths to the east and west of the Bamunpokri upper plateau, intended especially as adjuncts to fire protection, have been completed.

In the *Sukna Range*—

(4)—A path has been made across the Rungdung Valley close to the northern boundary of the Rungdung block. The distance is about a mile, and it will much facilitate fire protection and the control of the forest.

(5)—With the assistance of neighbouring planters interested in the road, the Adulpore-Sukna road has been repaired, and a bridge built over the Chamta river.

97. (*d*)—*Buildings.*—The divisional head-quarters bungalow at Dhobijhora, Kurseong, has been completed at a cost of Rs. 4,500. A ranger's house has been

built at Bamunpokri on a new site near Garidura, the old site having become completely shut in by the growth of the plantation. The cost was Rs. 250, or, including the value of the timber used, Rs. 382. Similar ranger's houses for the Sukna and Kurseong ranges are in course of construction.

The rest-houses at Sivoke and Bamunpokri have been thoroughly repaired, as well as the elephant shed at Sukna, the walls of which have been planked instead of being reconstructed of grass, so as to lessen the danger of fire.

98. (*e*)—*Reproductive measures.*—In the Bamunpokri plantation an addition of eight acres in block II, compartment 1, was made, completing the compartment. The plants put in were chiefly toon, sál, sissu, saj and lampatia. The latter tree is now in very extensive demand for tea boxes, and as it is one of the fastest-growing trees in Bengal, it will be most valuable for re-stocking denuded areas in the lower hills. Seedlings which had come up on the site of old charcoal kilns rapidly reached a height of 15 to 20 feet in three years, with proportionally strong growth in girth. Vacancies have been filled up wherever they existed in block I.

99. The India-rubber plantation on the hill side in block III continues to grow very fast. It has been extended for another acre, chiefly with plants thinned out from the older portion which is now very dense.

100. In the bamboo plantation vacancies were filled up. The growth of the species planted, viz. *Dendrocalamus Hamiltonianus* and *Bambusa Tulda* has been very good. As an experiment on the growth of bamboo under irrigation has been ordered by Government, an area has been chosen near Sukna, where the experiment can be properly conducted and water is available, and planting will be done at once.

101. (*f*)—*Fire protection.*—As reported for other divisions, the year under review has been a most favourable one for fire protection; owing to the heavy winter rains the grass in the Terai has never been sufficiently dry for any very considerable danger from fire to be apprehended.

Special protective measures have this year been extended to nearly the whole division, and especially to the Sukna Range and the Dulka Jhar block of the Balasun Range. The only fire of any consequence which occurred was that referred to in paragraph 95 as lit by the manager of a tea garden in the Moorgong block. The fire extended over about 400 acres, but the grass was so green that the Assistant Conservator reports that the damage was not nearly so great as is usual.

102. The general outlines of the system of protection were drawn up under the advice of the Inspector-General of Forests, and it may be considered fortunate that the first year of a regular attempt to protect the whole of the forests should have been one in which fires were scarce, as it has served to teach the executive and protective staff the work which in another season, such as we had in 1878-79, would be very difficult. One of the chief features of the present year's work is the manner in which we have been assisted by many of the tea-planters whose estates border on the forests, to whom our acknowledgments are due. This has already been referred to in paragraph 95.

103. The expenditure in protecting Bamunpokri has been—

	Rs.	A.	P.	
In 1876-77	1,213 or	14	2	per acre.
„ 1877-78	926 „	10	9	„ „
„ 1878-79	697 „	8	7	„ „
„ 1879-80	563 „	6	7	„ „

The expenditure on the Sukna Range in cutting and burning fire traces along boundaries and roads, and in the entertainment of fire patrols, was Rs. 1,269, while Rs. 77 were expended on the Dulka Jhar and Manjha blocks of the Balasun Range. The other blocks were protected by the regular establishment, but as no special measures were attempted, they are not entered in return No. 47.

104. (*g*)—*Creeper-cutting.*—In the Lama-Gumba block of the *Bamunpokri Range*, 494 acres were cleared at a cost of Rs. 46-5, or annas 1-6 per acre.

In the *Sukna Range* the Kooklong and Rungdung blocks, 1,759 acres, were cleared at a cost of Rs. 137-6-9, or annas 1-3 per acre. In paragraph 98 of last

year's report, it was said that the Balasun Range would be commenced, but it was then overlooked that these blocks of the Sukna and Bamunpokri Range had not been done.

3.—Yield and Working.

105. There has been a considerable decrease in the amount of timber work done in the Kurseong Division during the year. As stated in paragraph 99 of last year's report, no more sál sleepers have been cut in the Kurseong Division, though 1,000 saj sleepers of the 4½ foot gauge were cut for the Darjeeling Tramway Company. The greater part of the tramway supply, &c., has been procured from the private forests along the cart road.

106. In order to make an attempt at introducing the sale from depôt of other kinds of valuable trees than sál, the following trees were cut and have been or will be taken to the Sukna and Julpigoree depôts for sale :—

	Trees.		Logs.
Saj	145	giving	205
Chilauni	14	„	20
Lampatia	65	„	99
Sida	8	„	13
Champ	20	„	32
Toon	20	„	29
Gambari	23	„	26
Dabdabi (*Odina Wodier*)	1	„	2
Kimbu (*Morus cuspidata*)	1	„	3
Total ...	297	„	429

The result of the experiment will be reported next year. In addition to these, 251 sál logs were cut.

107. The timber brought to depôt is thus shewn—

	No.		C. feet.	
Logs.—Sál	481		10,910	
Saj	29		1,048	
Lampatia	4		108	
Gambari	2		64	
		516		12,130
Sleepers.—Sleepers, sál, narrow-gauge	2,372		3,165	
„ „ broad-gauge and bridge ...	16		44	
„ „ Saj ...	5,087		5,087	
		7,475		8,296
Other kinds.—Sál pieces, &c. ...		42		
Total ...		8,033		20,426
Add—				
Transferred from Tirihana to Rakti Depôt.				
Sál logs	12		197	
Transferred from Sivoke to Julpigoree Depôt.				
Sál logs	101		2,124	
„ sleepers, narrow-gauge ...	205		273	
„ jhanjies	183		.....	
Total ...		501		2,594
Grand Total ...		8,534		23,020

108. The following quantities of material were sold from Government Depôts during the year :—

Description of Timber.

		Pieces.		C. feet.	
Logs.—Sál		283		6,634	
Total ...			283		6,634
Sleepers.—Sál, broad-gauge ...		16		54	
„ narrow gauge ...		959		1,278	
Saj, tramway ...		750		750	
			1,725		2,082
Other.—Sál jhanjies ...		134		.....	
„ pieces ...		8		.....	
			142		.....
Total ...			2,150		8,716

109. The receipt at depôt compared with the disposals show as follows :—

	Number of pieces.	C. ft.
Receipts	8,033	20,426
Disposals	2,150	8,716
Increase of stock in depôts	5,883	11,710

110. The financial results of departmental timber operations show as follows :—

	Rs.	A.	P.
Average amount realized per cubic foot omitting outstandings of last year, received during that under review ...	1	2	10
Average expenditure per cubic foot, including share of establishments, elephants, tools, &c.	0	9	1
Surplus per cubic foot ...	0	9	9

111. The following statement shows the quantity of forest produce removed by purchasers :—

Name of Produce.		Number.	Amount.	Rate.	Remarks.
Timber.			Rs. A. P.	Rs. A. P.	
Green trees ... Champ		7	175 0 0	25 0 0	
Sál		78	1,560 0 0	20 0 0	
Booke		4	60 0 0	15 0 0	
Saj		25	375 0 0	15 0 0	
Panisaj		7	105 0 0	15 0 0	
Semul		77	1,155 0 0	15 0 0	
Lampatia		33	495 0 0	15 0 0	
Chilauni		62	905 0 0	10 & 15 0 0	
Sida		6	60 0 0	10 0 0	
Udal		1	10 0 0	10 0 0	
Kaula		11	110 0 0	10 0 0	
Lali		5	50 0 0	10 0 0	
Karam		6	60 0 0	10 0 0	
Gambari		1	10 0 0	10 0 0	
Lepchaphal		1	10 0 0	10 0 0	
Siasu		58	580 0 0	10 0 0	
Siris		2	20 0 0	10 0 0	
Hoongia		4	40 0 0	10 0 0	
Gobria		4	40 0 0	10 0 0	
Kadam		1	10 0 0	10 0 0	
Goguldhup		1	10 0 0	10 0 0	
Khair		2	10 0 0	5 0 0	
Kumbi		1	5 0 0	5 0 0	
Goehlo		5	5 0 0	1 0 0	
Kirra		56	56 0 0	1 0 0	
Dry timber ... Sál khambas		1	6 0 0	6 0 0	
Ditto		10	80 0 0	8 0 0	
Ditto		79	118 8 0	1 8 0	
Ditto		270	135 0 0	0 8 0	
Sál narrow-gauge sleepers, rejections ...		31	15 8 0	0 8 0	
Total of IIa ...			6,221 0 0	.....	
Firewood.					
Firewood, maunds		26,504	1,325 6 9	5 0 0	per 100
„ cart loads		95	47 8 0	0 8 0	
„ cooly loads		892	55 12 0	0 1 0	
„ tickets		12	60 0 0	5 0 0	
Total of IIb ...			1,488 10 9	.....	

Name of Produce.	Number.	Amount.	Rate.	Remarks.
Bamboos.		Rs. A. P.	Rs. A. P.	
Number	31,725	317 4 0	1 0 0	per 100
Total of IIc ...		317 4 0	.....	
Grazing and fodder grass.				
Head of buffaloes	4,450	834 6 0	0 3 0	
" cattle	2,658	332 4 0	0 2 0	
" goats	66	4 2 0	0 1 0	
Fodder tickets	886	443 0 0	0 8 0	
Total of IId ...		1,613 12 0	.....	
Other minor produce.				
Canes, loads	254	63 8 0	0 4 0	
" tickets	1	6 0 0	6 0 0	
Thatch grass, bundles	26,911	420 7 9	0 0 3	
Lime		50 0 0	.....	
Earth		8 0 0	.....	
Total of IIe ...		542 15 9	.....	
Grand Total II ...		10,183 10 6	.....	

showing a decrease on last year's collections chiefly in firewood and grazing. The falling off in the demand for firewood is chiefly due to planters having lately in many gardens introduced an economical system of firing tea by covering the charcoal fires with ashes, and thus consuming a smaller quantity of charcoal than formerly. The sales of *simul* and *lampatia* in this and late years point to a large demand for the wood of these trees for tea-boxes. They are both very fast growers, and should be encouraged in arranging for reproduction in the moist forests of other kinds than sál.

112. The following figures exhibit the actuals of the year arranged under main heads as in paragraph :—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
I.—Departmental timber operations	28,039	11,609	16,430	.....
II.—Other revenue	12,008	3,456	8,552	.....
III.—Formation, protection and improvement of forests	.....	15,289	... ..	15,289
Total ...	40,047	30,354	24,982	15,289

D.—JULPIGOREE DIVISION.

1.—Area and Boundaries.

113. (*a*)—*Area.*—The Rehti, Teeti, and Dumchi forests, referred to in paragraph 106 of last year's report, were gazetted during the year to be permanently reserves under section 19 of the Forest Act.

The rest of the forest area which remains was inspected during the year, and proposals for the reservation of the Malhati, Kyranti, and Goshai Hât forests are now under discussion as explained in paragraph 5. These forests would only add an area of about 3,000 acres to the reserves as finally taken up.

114. The Julpigoree Division has been divided into four ranges, and then again into blocks and beats as follows :—

Blocks.	Beats.
Apalchand Range—	
Rajadanga	1
Chengmari	2
Tondu Range—	
Upper Tondu	3-4
Lower "	5-6
Muraghat Range—	
Dainah	7
Muraghat	8-9
Rehti	10
Falakata Range—	
Dulgaon	11
Dumchi	12
Khairbair	13
Teeti	14

115. (*b*)—*Demarcation.*—The northern boundary of the Dainah forest which was the only line still left, was completed by Mr. Green. The whole of the boundary lines, a distance of about 78 miles, were cleared and the posts numbered. The cost of clearing the lines amounted to Rs. 1,011-8.

116. (*c*)—*Boundary Records.*—There are now only wanting for the upper part of the *Dainah* reserve which should be completed during the current year.

2.—Protection and Improvement.

117. (*a*)—*Establishments.*—The following were entertained during the year :—

1 Forest ranger.
4 Foresters.
14 Forest guards.
4 Peons.

118. (*b*)—*Breaches of Forest Rules.*—Two cases together, one which was pending from last year, were instituted, involving seven persons. Of these cases, two were for setting fire to the forest, and the third for theft of timber. Convictions were obtained in all.

119. (*c*)—*Roads and Bridges, Muraghat Range.*—The road through the Muraghat reserve, from Naltanpara on the north to the southern boundary, was cleared for its whole length, nine miles, at a cost of Rs. 55. This is a good bridle road, following high ground, and will be most useful for inspection and the extraction of forest produce. In addition to this, a trace was cut through the northern part of the forest, from near Naltanpara to the Garati, a distance of one mile, costing Rs. 11. This line must be kept up as part of a main road of communication from the Dainah river to the Rohti, a tract of very sparsely inhabited country, covered, with the exception of the reserves, almost entirely with long grass and with very few villages.

120. Another very useful north and south road was cleared through the Rajadanga block of the *Apalchand Range* from Kadambari to Udlabari for a distance of eight miles at a cost of Rs. 15. This road is very valuable in fire protection, inspection, and for communication, and should be useful as connecting the large areas of cultivated country north and south of the reserve.

121. In the *Tondu Range* the old paths through the Lower Tondu block were kept clear, and an inspection path was made through the Upper Tondu block from the Murti to the Jaldaka river, for a distance of six miles, costing Rs. 9.

121½. *Falakata Range.*—In the Dalgaon block a north and south road was cleared on high ground on the line of an old timber road. The distance cleared was 2½ miles. This will, with the Guabor tea plantation roads, connect the reserve with the Julpigoree-Falakata road at Salbari. In the Dumchi block a similar road was cleared for inspection purposes.

A good beginning has thus been made in opening up roads in this division, which were very much needed, from the difficult nature of the country.

122. (*d*)—*Buildings.*—A ranger's house was built for the Muraghat Range at Khairkata at a cost of Rs. 100. Another was constructed at Kadambari for the Apalchand Range, costing Rs. 50. Houses will this year be built for the foresters of the Tondu and Falakata Ranges.

123. (*e*)—*Fire protection.*—Works were chiefly carried on at the suggestion of the Inspector-General in the Rajadanga block of the *Apalchand Range.* The whole of the grass land on the boundary was burnt clear, and protection lines were burnt along the Dalingkote and Udlabari roads. The low Savannah land along the former road was also burnt over. Fire patrols were also entertained. In this block no fires occurred. In the Chengmari block, however, about 1,200 acres, not sál forest, were burnt, the fire having, it is suspected, been lit by graziers.

124. In the *Tondu Range* fire protection works were limited to burning the Savannah lands and fire-tracing the two main roads in Lower Tondu block.

125. *Muraghat and Falakata Ranges.*—The Muraghat, Dulgaon, and Dumchi forests were treated in the same way as Tondu. Small portions of the Dainah,

Rehti, and Khairbari forests were burnt, probably by graziers in the cases of the first two forests, and certainly so at Khairbari, where the man who set fire to the forest was caught and convicted.

126. This, like other divisions, has of course participated in the favourable season, so that the arrangements for fire protection were not severely tested; but the divisional officer took great pains early in the season to arrange the protective works, without which, undoubtedly, even this year, considerable damage might have occurred.

3.—Yield and Working.

127. In the Apalchand and Muraghat open forests (Malhati and Goshai Hât) trees were felled for the Road Cess Department. In the former 86, and in the latter 166 sál trees were cut. In the Dainah reserve 150 sissu trees were felled.

128. The following quantities of timber were taken to depôt during the year:—

Description of timber.	No.		C. feet.	
Logs.—Sál	298		5,692	
Toon	1		10	
		299		5,702
Other kinds.—Sál jhanjies	97			...
Total		396		5,702

129. The following quantities of timber were sold from depôt:—

Description of timber.	Pieces.		C. feet.	
Logs.—Sál	441		4,817	
Toon	1		10	
		442		4,827
Sleepers.—Sál, narrow guage	8		11	
„ broad „	110		366	
		118		377
Other kinds.—Sál jhanjies	115		...	
„ slabs	96		...	
		211		...
Total ...		771		5,204

130. The material removed from the forests by purchasers is thus given—

Description of Produce.	Number.	Amount realized.	Rate.	Remarks.
Timber.		Rs. A. P.	Rs. A. P.	
Green trees ... ... Sál	136	2,720 0 0	20 0 0	
Sissu	30	700 0 0	.....	
Sida	13	130 0 0	10 0 0	
Dry timber ... ... Sál jhanjies	13	78 0 0	6 0 0	
Ditto	162	486 0 0	3 0 0	
Ditto	650	975 0 0	1 8 0	
Ditto	72	72 0 0	1 0 0	
Ditto	593	296 8 0	0 8 0	
Ditto	37	9 4 0	0 4 0	
Sál tops	38	19 0 0	0 8 0	
Sissu pieces	5	15 0 0	3 0 0	
Ditto	24	36 0 0	1 8 0	
Ditto	36	36 0 0	1 0 0	
Ditto	29	14 8 0	0 8 0	
Realisations on account of extension of permits	.....	75 0 0	.....	
Total under IIa ...	.....	5,662 4 0	.....	
Bamboos.				
Bamboos	800	8 0 0	1 0 0	per 100
Total under IIc ...	.....	8 0 0	.....	
Grazing and Fodder grass.				
Buffaloes	5,525	690 10 0	0 2 0	per head.
Cows	76	7 2 0	0 1 6	ditto.
Total under IId ...	.....	697 12 0	.....	
Other minor produce.				
Cane, tickets	31	186 0 0	6 0 0	per ticket.
Total under IIe ...	.....	186 0 0	.....	
Total IIa, c, d, and e ...	.....	6,554 0 0	.....	

4.—Financial Results.

131. The actuals stand as follow:—

		Rs.	Rs.
Receipts ...	...	... ...	10,417
Charges ...	...	A 5,129 B 6,464	... 11,593
		Deficit ...	1,176

showing an improvement on last year. Another year, it is hoped, the deficit will disappear.

E.—BUXA DIVISION.

1.—Area and Boundaries.

132. (*a*)—*Area.*—No alteration was made in the areas of the reserves during the year.

The forest areas still remaining were inspected, and the Salkuer and Butri forests recommended to be reserved as already described in paragraph 5. These areas would add only 2,500 acres to the existing area.

133. The Buxa Division has been divided into three ranges, and these again into blocks and beats as follows:—

	Blocks.	Beats.
Borojhar Range ...	Borojhar, North	1
	Ditto, South	2
Buxa " ...	I, Raimatong	3
	II, Poro	4
	III, Rajabhatkhawa	5-7
	IV, Panbari	8
Haldibari " ...	Raidak	9
	Dhampara	10
	Bholka	11

134. (*b*)—*Boundaries.*—These have suffered no change during the year, and are all in order. A commencement has been made in laying down the northern boundary of the Buxa Range, where it forms the boundary line between British territory and Bhutan. This is being done by an officer specially appointed for the purpose, and will probably be completed next season.

135. The work of clearing the boundary lines was performed at a cost of Rs. 960-6-6 as follows:—

	Miles.	Cost. Rs.	A.	P.
Borojhar Range	11¾	209	4	0
Buxa "	50¼	437	10	6
Haldibari "	18¼	313	8	0
Total ...	80¼	960	6	6

or an average of Rs. 11-15-4 per mile. The lines were all made passable for ponies and foot-passengers, and a bridge was thrown over the Duria river on the south boundary of the Buxa Range.

2.—Protection and Improvement.

136. (*a*)—*Establishment.*—The following were entertained:—

Forest rangers	2
Foresters	6
Forest guards	11
Peons	8

Of the forest rangers and foresters, four are employed in charge of the forests and four in the depôts at Alipore, Gachidanga, Kawnia and Dacca.

137. (*b*)—*Breaches of Forest Rules.*—Four cases were instituted during the year, involving six persons, in all of which convictions were obtained. One case was on account of the fire in the Raidak block, which was lit by a grazier who was prosecuted and punished; another was for trespass and grazing in the plantations near the Deema river.

138. (*c*)—*Roads and Bridges.*—During the year 45 miles of roads made in former years were cleared at a cost of Rs. 639-3-1, or Rs. 14-3-3 per mile. Addition was made to the east and west traces at the 18th, 19th, 20th, and 21st miles, costing Rs. 319 for 9½ miles, or Rs. 33-9-3 per mile. The distance of roads cleared is therefore now as follows :—

Trace.	Done formerly.	In 1879-80.	Total.
18th mile	10	0·5	10·5
19th „	...	4·5	4·5
20th „	2	2·5	4·5
21st „	2·5	2	4·5
22nd „	5	...	5
23rd „	4	...	4
24th „	3·6	...	3·6
25th „	3·8	...	3·8
26th „	3·7	...	3·7
27th „	3·4	...	3·4
28th „	2·6	...	2·6
29th „	2·6	...	2·6
30th „	2·2	...	2·2
	45·4	9·5	54·9

139. The system of eastern and western lines ordered to be constructed in the working plan of the Buxa Range has therefore been now completed for the Rajabhatkhawa block III. The 22nd mile trace extends eastwards through the Panbari block and by joining the boundary line, westwards to the north of the Poro block also.

140. (*d*)—*Buildings.*—A forester's house for the Borojhar Range was built at Chilapatta, a well-chosen spot for the range head-quarters, on the Burhi Toorsa, near the outlet of the principal road through the reserve. The forester's depôt hut at Alipore had to be removed back from the bank of the Kalajani river, as it was in danger from the cutting in of the river. The forest house will have to be similarly removed this year. An elephant shed at Rajabhatkhawa, as well as huts for the mahouts, were also constructed at a cost of Rs. 222.

141. (*e*)—*Reproductive measures.*—No addition was made to the south boundary sál belt, but about 9 acres in compartments 25 and 26 was planted up with sál seedlings, which, with the exception that a number of plants were dug up and damaged by porcupines, are doing well. A large nursery on good ground has been made and stocked with seedlings of various trees, which will be planted out this year, not in regular plantation, but in bands, according to the system suggested by the Inspector-General of Forests. The Officiating Conservator was much pleased with this nursery. If the plantations are as successful as the nursery, it will not be long before we have a thick belt of forest covering the Savannah tracts of compartments 25 and 26, and acting as a preservative against the danger of fire. A good deal of the land in these Savannahs will not grow sál, so seedlings of almost any kind of which seed could be got, and especially evergreens, have been raised. Some of the plants grown from seed sown last rains had reached nearly four feet in height by the time of the Officiating Conservator's visit in July.

142. (*f*)—*Creeper-cutting.*—Compartments 17, 18, and 19 of block III, Buxa Range, covering an area of 3,185 acres, were cleared of creepers at a cost of Rs. 105. This increases the total area cleared since these operations commenced up to 18,540 acres.

143. (*g*)—*Protection from fire.*—The divisional officer gives the following account of the measures taken by him to protect from fire the forests of his division:—

"The past year has been an exceptionally favourable one for fire protection, owing to the early setting in of the rains and absence of strong winds. The whole of the reserves where protection measures were undertaken were successfully protected, viz. the Buxa Range, Bholka block of the Haldibari Range, and the sál tract in the Borojhar Range.

"Three small accidental fires occurred in the specially protected tracts, but the total area burnt was under three square miles, and chiefly Savannah. The only considerable damage which occurred was in the Raidak block, where special measures for protection were not attempted. Three fires occurred in this block and burnt nearly the whole of it, with the exception of a small tract of sál in the centre.

"The special measures taken for protecting the reserves from fire were those suggested by Dr. Brandis in his memorandum of February 1879, and consisted, in the Buxa Range, of a system of fire traces parallel to the Buxa-Alipore road and Deema and Balla rivers, as well as on the 22nd and 26th compartment lines and along the foot of the Buxa hills.

"The traces were cleared 30 feet broad, and the grass on both sides of the Buxa-Alipore road and 22nd compartment line was burnt; but it was so green along the road south of Rajabhatkhawa that in several places I was unable to burn it. In the Borojhar reserve the sissu tract along the Toorsa river was burnt by the forester in order to guard against fire from the west getting into the sál tract which was specially protected. It was, whilst doing this work, that about a square mile of sál forest near the Patlakhawa road got burnt. The first fire in the Borojhar reserve occurred on the 26th January last, whilst your camp was at Chilapatta. It was fortunately extinguished before any mischief was done, as only Savannah was burnt.

"As was to be expected, the clearing of the internal fire traces entailed a considerable increase of expenditure on fire conservancy."

144. The rains which occurred during the cold weather were, of course, after all, the great cause of the success of fire protection measures in this as well as in other divisions; but preparations had to be made all the same for fear of the rain stopping and dry weather ensuing, so that the expenditure on fire protection works was heavy. But the benefits of fire protection have now become so apparent that it is absolutely necessary that expense should not be spared. On his recent visit to the Buxa reserve, the Officiating Conservator was much struck by the way in which the sál trees in the parts of the forests which have now been protected for several years have improved in growth and healthy appearance. Many of the smaller Savannah tracts too, on high ground, are filling up, the tops of the young trees already showing well above the grass. One point concerning fire protection in forests like these must be noticed, and that is that every year the damage which would be done by fire getting in, increases in proportion as the dry grass accumulates. This is, however, only temporary, for with constant protection after a few years the seedlings must overtop, shadow and kill down the grass, of which besides a large quantity necessarily decays during the rainy season. The belief in Chittagong is that if sun grass is allowed to remain uncut and unburnt for three consecutive years, it dies out; but this is not quite the case in the large Savannahs of the Duars, though there is no doubt that the absence of the stimulating heat of the fires and the dense masses of dry grass prevent the shoots coming up nearly as strong as they would after burning. The Officiating Conservator has, however, noticed, in some localities in the Terai, and chiefly on lands covered with sun grass (*Saccharum cylindricum*), that immunity from fire *does* occasionally cause its disappearance, though not usually quite so soon as is believed, probably with reason, in Chittagong.

3.—Yield and Working.

145. As already stated in paragraph 131 of last year's report, the provisions of the working plan were temporarily suspended during part of 1878-79, and the measure was continued in the year under review, fresh fellings being

stopped until more of the old stock should be worked off From a reference to form 54, it will be seen that the clearing off of the old stock from the forests still progresses, the following timber still remaining on 1st April of the trees already felled and recorded in the table given in paragraph 131 of last year's report:—

	Sál.	Sissu.
Compartment 1	...	...
„ 2	...	...
„ 3	...	53
„ 4	...	25
„ 5	...	115
„ 6	...	...
„ 7	92	170
„ 8	1,039	7
„ 9	22	348
„ 10	616	340
„ 11	...	...
„ 12	237	...
„ 13	199	...
„ 14	615	...
„ 15	58	...
„ 16	102	...
Total ...	2,980	1,058

enough probably to last for one more year without fresh fellings being made. Many of the sissu trees, though of large size, were found when brought out, or inspected in the forests, to be in a bad condition with hollows and wounds, the result of the fierce jungle-fires of former years—fires which are always fiercer in the very long grass of the kind of sissu forest found in the Buxa Range, than in the comparatively low grass of the sál forests.

146. The following quantities of timber were taken to depôt during the year:—

Description of timber.	No.		C. feet.	
Logs—Sál	1,241		44,956	
Sissu	59		1,435	
		1,300		46,391
Sleepers—Sál, narrow-gauge	16,154		21,539	
Miscellaneous, broad-gauge ...	870		2,900	
		17,024		24,439
Other kinds—Sál posts	546		.....	
„ pieces	302		... ..	
„ slabs	3,654		.....	
„ scantlings	59		61	
„ jhanjies	10		.....	
Miscellaneous posts ...	99		.....	
		4,670		61
Total ...		22,994		70,891

ADD—

Transferred from one Depôt to another.

Sál logs	289		10,811	
„ narrow-gauge sleepers	11,875		15,833	
„ posts	99		.....	
„ slabs	40		.....	
„ jhanjies	2		.....	
Miscellaneous posts	43		.....	
Total ...		12,348		26,644
GRAND TOTAL ...		35,342		97,535

147. The timber sold from depôts was—

Description of timber	No.	C. feet.	
Logs—Sál	604	21,225	
Sissu	1	15	
	605		21,240
Sleepers—Sál, narrow-gauge	11,934		15,912
Other scantlings, slabs, &c. ...	2,675		27
Total ...	15,214		37,179
ADD—			
Logs cut into sleepers in depôt ...	101		1,353
Lost and used by the department ...	887		1,382
GRAND TOTAL ...	16,202		39,914

148. The comparison between the receipts at depôt and the disposals shows thus—

Receipts at depôt	22,994	70,891
Disposals	16,202	39,914
Increase of stock ...	6,792	30,977

the increase being in logs and sleepers brought out, but not sold, in consequence of the reductions of indents.

149. The reduction of the requirements of sleepers for the Northern Bengal State Railway from 80,000 to 16,000 has had considerable effect on the expected revenue from the Buxa Division. It was, however, not thought advisable to reduce the sawing establishments, and sleepers have consequently continued to be cut and brought out. Some of these will be disposed of to the Nalhati State Railway, and the sawyers are now at work on an indent for the Kawnia-Kurigram Tramway.

150. In paragraph 139 of last year's report, it was stated that a number of broad-gauge sleepers had been despatched for experiment on the Eastern Bengal Railway. The Officiating Conservator regrets to report that these were lost in a storm on the Brahmaputra, and have had to be taken off stock with the sanction of Government. There will always be considerable difficulty in getting timber to a locality like Goalundo down the broad river, and the fresh consignment which has been prepared, and is in transit, has also met with very bad weather. It is hoped, however, that all, or most at any rate, will arrive safely.

151. Financially, the timber operations show the following results:—

	Rs.	A.	P.
Average amount realized per cubic foot	1	5	3
Average expenditure per cubic foot, including share of establishment, elephants, tools, &c.	0	8	1
Surplus per cubic foot ...	0	13	2

but the high surplus is due to a good deal of timber having been brought out to depôt at Alipore only, expenditure not being incurred in transferring it to the lower sale depôts.

152. The following list shows the produce removed by purchasers from the forests during the year :—

Description.	Number.	Amount realized.	Rate.	Remarks.
Green Timber.		Rs. A. P.	Rs. A. P.	
Dabdabbi	1	10 0 0	10 0 0	
Sida	3	30 0 0	10 0 0	
Chilauni	1	10 0 0	10 0 0	
Dry timber—				
Sál jhanjies	127	762 0 0	6 0 0	
Ditto	425	1,275 0 0	3 0 0	
Ditto	1,176	1,764 0 0	1 8 0	
Ditto	24	24 0 0	1 0 0	
Ditto	634	317 0 0	0 8 0	
Ditto	118	29 8 0	0 4 0	
Sissu jhanjies	14	42 0 0	3 0 0	
Difference in rates	.....	7 8 0	.....	
Total under II*a* .	.....	4,271 0 0	.....	
Firewood and Charcoal—				
Carts	77	38 8 0	0 8 0	per cart.
Maunds	1,700	85 0 0	5 0 0	„ 100 maunds.
Total under II*b* ...	.....	123 8 0	.....	
Bamboos	1,076	8 6 2	0 8 0	„ 100.
Ditto	1,680	16 12 9	1 0 0	„ 100.
Total under II*c* ...	. ..	25 2 11	.....	
Grazing and Fodder grass—				
Elephants	.....	32 0 0	.. .	
Buffaloes	1,846	230 10 0	0 2 0	each.
Cows	79	7 6 6	0 1 6	„
Grass loads	3,455	53 15 9	0 0 3	per load.
Total under II*d* ...	.....	324 0 3	.....	
Other minor produce—				
Lime	60 mds.	15 0 0	0 4 0	„ maund
Total under II*e* ...	.... .	15 0 0	.. ..	
Total under II *a*, *b*, *c*, *d*, and *e* ...	.....	4,758 11 2	.....	

4.—Financial Results.

153. These stand as follows :—

	Receipts.	Charges.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
1. Departmental timber operations	59,397	35,832	23,565	.....
2. Other revenue	4,954	5,578	.....	624
3. Formation, protection and improvement of forests	.....	14,678	.....	14,678
Total ...	64,351	56,088	23,565	15,302

F.—PALAMOW DIVISION.

1.—Area and Boundaries.

154. (*a*)—*Area.*—In the reserves of the Lohardugga district no alteration in area was made during the year.

155. With regard to the reserves in the Shahabad district, viz. Rhotas, Rehul, and Bans-i-koh, enquiries made by the Collector into the validity of the title of Government to the lands so reserved had for result that it was ascertained that the only tracts over which Government had undoubted proprietory rights were those of the Rhotas plateau and the uncultivated parts of Rehul. It was then considered that this area would be too small to be worth retaining as a reserved forest, and the Lieutenant-Governor consequently notified on the 14th October that the reservation of the Shahabad forests was cancelled. It will now be arranged to demarcate such portions of the forests as are undoubtedly the property of Government, and constitute them protected forests under the Act. One forest guard is still retained to look after the interests of Government under the divisional officer in communication with the Collector.

156. The Palamow Division is divided into four ranges (exclusive of Rhotas) and these into beats. No definite blocks have yet been instituted. The ranges are—

		Forest.	Beats.
Hurnomand Range	... ...	Keohki Betla Saidope	1 to 6
Kumandi "	... ...	Kumandi Ramundag	7 to 11
Barasand "	... ...	Barasand	12 to 15
Seema "	... ...	Seema	16 to 20

157. (*b*)—*Demarcation.*—The Assistant Conservator reports the state of the posts as bad, though the lines themselves are well defined and have been kept clear; he has consequently commenced to put the posts in order and to prepare the *boundary records*, a beginning towards the preparation of which was made by Mr. Jacob in the Betla and Saidope forests. The boundary survey of the Kumandi and Ramundag forests has been completed by Mr. Johnston, shewing a length of survey of 36 miles at a cost of annas 10-8 per mile.

158. All villages from within the forests have been removed, the villagers settling elsewhere and receiving compensation. A few small rectifications of boundary will still have to be made on the recommendation of the Assistant. Commissioner, and these are in process of settlement.

2.—Protection and Improvement.

159. (*a*)—*Establishments.*—These consist of—

Foresters	4
Forest guards	21

160. (*b*)—*Breaches of Forest Rules.*—Four cases were instituted during the year, involving 16 persons. One case is still pending; in the others convictions were obtained.

161. (*c*)—*Buildings.*—A small elephant shed was erected at Daltonganj, at a cost of Rs. 25, and the foresters' houses were repaired.

162. (*d*)—*Fire protection.*—This is the first year that any measures for protection have been undertaken in the Palamow forests, and it is pleasing to report that some success has been obtained. Fire protection lines, 40 feet broad, were cut round the forests, and up to the 31st March the whole area was safe. Since that time, however, three fires have occurred, viz. in parts of the Hurnomand, Kumandi and Saidope forests. The persons who caused the fires were chiefly mowah pickers, and in one instance the fire was caused from the camp of a traveller. The offenders were prosecuted and punished. An interesting map, prepared by Mr. Johnston, shows the area burnt over to have been 20,480 acres, out of 114,560 acres attempted to be protected.

3.—Yield and Working.

163. The following table shows the material removed from the forests by purchasers during the year:—

Description.	Number.	Amount.	Rate.	Remarks.
		Rs. A. P.		
IIa.—Sál poles, dry	207	11 15 0		
IIb.—Firewood, pieces	100	5 3 0		
IIc.—Bamboos	7,167	25 12 0		
IId.—Grazing cattle	5,070	808 8 2		
IIe.—Mowah flowers	... ..	230 0 0		
IIe.—Mango fruit	... ...	1 0 0		
IIe.—Thatch grass	... ...	2 4 0		
IIe.—Paddy	... ...	2 0 0		
Total II ...	... ...	1,081 5 2		

4.—Financial Results.

164. These stand as follows:—

		Rs.	Rs.
Receipts	... ...	...	1,097
Charges	... ...	A 1,727 B 10,251	11,978
		Deficit ...	10,881

H.—HAZARIBAGH DIVISION.

1.—Area and Boundaries.

165. (*a*)—*Area.*—At present this division contains only the Koderma forest, still on the 1st April 1880 under settlement under C II of the Forest Act, but since then permanently gazetted. The chief work of an officer in this division is the bringing of the Saranda forests in the Singbhoom district under management by demarcation. The results of the Assistant Conservator's visit to Saranda have been reported in paragraphs 3 and 4, so that little more need be said, except that it is hoped that before the end of the present year the large forests which so much require careful protection will be demarcated, and in a fair way towards final reservation.

166. (*c*)—*Boundaries.*—Those of Koderma are in good order and have been kept clear during the year.

2.—Protection and Improvements.

167. (*a*)—*Establishments.*—In Koderma one forester and two forest guards are at present entertained, and a small establishment has, with the approval of the Deputy Commissioner, been since stationed at Saranda.

168. (*b*)—*Breaches of Forest Rules.*—Three cases were instituted, involving four persons, in all of which convictions were obtained.

169. (*c*)—*Protection from fire.*—An attempt was made to exclude fire from the Koderma reserve, and so far successfully, that only two square miles were burnt. The fires got in from the north from the Gya district, but the Assistant Conservator reports that very little damage was done.

3.—Yield and Working.

170. As this is the first year in which revenue has been collected in Koderma, the amount is necessarily small, amounting only to Rs. 41-1-6. The expenditure of the division amounted to Rs. 4,229-15 6, showing a deficit of Rs. 4,188-14-0.

H.—SUNDERBUNS DIVISION.

1.—Area and Boundaries.

171. No changes have taken place in the area and boundaries of the reserved forests.

2.—Protection and Improvement.

172. (*a*)—*Establishments.*—The following was the establishment on the 31st March 1880:—

3 Forest rangers.
19 Foresters.
12 Forest guards.

173. The reserved forests have been divided into three ranges, each comprising a certain number of toll stations. These are as follow:—

Bagirhat Range—

Stations ... { Lower Bhola.
Upper do.

Khulna Range—

Station ... Khulna. Pussur. Bhudder. Seepsa. Koyra.

Satkhira Range—

Stations ... Cobaduk. Isripore. Bussuntpore. Roymangal.

174. (*b*)—*Breaches of Forest Rules.*—Five cases pending from last year have been decided, and convictions obtained. During the year 14 cases were instituted, involving 36 persons. In eight cases convictions were obtained, one is still pending, while five resulted in acquittal. The Deputy Conservator attributes the number of acquittals to the difficulty experienced by the rangers or foresters in conducting cases against the pleaders whom the accused employ, and the impossibility of their being present in each case. Of the cases in which convictions were obtained, two were for rash navigation, five for unlawful felling, and one for assault on a Government servant.

175. (*c*)—*Buildings and Boats.*—Station-houses were erected during the year at Pussur and Roymangal, making altogether nine houses. The erection of two more will complete the requirements of the reserved forests.

176. No more boats were constructed for the reserved forests. It was found that the zinc with which the bottoms of the departmental boats were covered corroded under the action of sea water, and the spelter had consequently to be removed.

177. (*d*)—*Reproductive measures.*—The baobab plantation at Ghooskhali has shown no improvement. There are now only 126 plants, and the average height is the same as last year. No further expense will be incurred on the experiment, which appears to be a failure. It will merely be inspected from time to time by the toll establishment. The plants at Khulna, though somewhat larger, have also not improved any more than those at Ghooskhali.

3.—Yield and Working.

178. No timber works were undertaken during the year. Sixty-four sundri logs of 741 cubic feet were confiscated and sold, realizing Rs. 119, or 2 annas 6 pie per cubic foot. They were mostly old and small. One hundred and fifty maunds of firewood was also confiscated and sold for Rs. 8. A certain amount of salved and drift timber was collected. This was either restored to the owners on identification, or still remains waiting identification, or, if not identified, sale.

179. The quantities of material removed from the reserved forests during the year are shown below:—

Description of Timber.	Boats.	Rafts.	Logs.	Maunds.	Amount realized and due.	Rate.	Remarks.
					Rs. A. P.	Rs. A. P.	
Sundri timber	5,689¼	20	5,082	7,77,663¼	48,603 15 6	6 4 0	per 100 maunds.
Keora "	442¼	... ..	1,107	1,10,165	1,815 1 3	1 9 0	ditto.
Sundri posts	75¼	.	229	14,317¼	894 13 3	6 4 0	ditto.
Ditto "	45	..	12	10,891	170 2 9	1 9 0	ditto.
Goran "	1,388¼	...	75	7,02,647	10,978 13 9	1 9 0	ditto.
Pussur "	723¼	.....	962	1,56,198	2,440 9 6	1 9 0	ditto.
Kirpa "	12	.....	.....	9,125	142 9 3	1 9 0	ditto
Amoor "	377	.....	.....	50,839	794 5 9	1 9 0	ditto.
Gowa "	4	.....	.....	1,237	19 5 3	1 9 0	ditto.
Dhundal "	56	.. .	... ..	15,114	236 2 6	1 9 0	ditto.
Kakra timber	4	.....	.....	154	2 6 6	1 9 0	ditto.
Sundri masts	20¼	3	3	5,291¼	330 14 9	6 4 0	ditto.
Ban timber	10	.....	.....	842	13 2 6	1 9 0	ditto.
Total under IIa. ...	8,857¼	23	7,470	18,60,487¼	66,442 6 6	.	
Firewood	13,387¼	.	.....	52,03,296	81,501 8 0	1 9 0	ditto.
Total under IIb. ..	13,387¼	...	.... .	52,03,296	81,501 8 0	.....	
Golpatta	7,486¼	...	. ....	22,25,153	34,768 0 3	1 9 0	ditto.
Null	510	... ..	... ..	1,06,136	1,658 6 0	1 9 0	ditto.
Shells	263	.... .	.....	1,24,601	1,946 14 3	1 9 0	ditto.
Hital	11	.....	.....	1,256	19 8 6	1 9 0	ditto.
Cane	143	.....	... .	4,905	76 10 3	1 9 0	ditto.
Wax and honey	117	.. .	.. ..	..	827 0 0	1 0 0	per maund.
Total under IIc. ...	8,530¼	.....	...	24,62,045	39,296 7 3	....	
Grand Total under IIa, *b* & *c*....	30,775¼	23	7,470	96,25,828¼	1,87,040 5 9	... .	

4.—Financial Results.

180. These stand as follows :—

		Rs.	Rs.
Receipts	... ...	...	... 1,87,324
Charges	... ...	A 15,173 B 22,547	... 37,720
		Surplus	... 1,49,604

The distribution of the figures, as separated from those of the Protected Forests, is that given by the Deputy Conservator.

The results show an improvement on last year, chiefly in decrease of expenditure, and the surplus gives, taking the area of reserves at 1,581 square miles, a net revenue per square mile of Rs. 94-10, which is an improvement on 1878-79.

I.—CHITTAGONG DIVISION.

1.—Area and Boundaries.

181. (*a*)—*Area.*—No change in area occurred during the year.

182. The procedure under C II of the Forest Act, for the reservation of the areas given in paragraph 160 of last year's report, as gazetted under section 4 in notification of the 10th May 1878, is still in progress.

In December 1879 the Forest Settlement Officer made his report on the claims for compensation to be awarded on account of the villages and the property of the villagers in the proposed reserves. He estimated the amount of compensation at—

	Rs.
Kasalong Forest	7,235
Rinkheong	569
Sitapahar	55,503
Sungoo	170
Matamori	267
Total ...	63,744

On receipt of the Forest Settlement Officer's orders, the sum proposed to be paid for compensation appeared to the Officiating Conservator to be so extravagant that it became necessary to appeal. He therefore, with the Assistant Commissioner, and during a portion of his time in company with the Deputy Commissioner, the Forest Settlement Officer, visited the two reserves in which the largest compensation had been adjudged—Kasalong and Sitapahar. He found that the assessment made by the person deputed by the Forest Settlement Officer to investigate possible claims (for no regular claims were made under the proclamation) had entered villages that had no connection with, being entirely outside, the proposed area, and had otherwise over-assessed the houses, fruit-trees, and lands held by the villages. This was fully explained by him at a conference held in Chittagong, at which the Commissioner and Deputy Commissioner were present, and a general revision agreed to. The Officiating Conservator also presented his appeal under section 16 of the Act, and the question is now in the hands of the Commissioner and Government. It is very greatly to be hoped that matters, at any rate as regards the Kasalong, Rinkheong, Sungoo, and Matamori forests, may be soon settled, as júm cultivation is spreading, and as the delay in issuing the final notification must result in damage to the forests which contain magnificent timber. The demarcation in the Matamori has been completed, while that of the Kasalong and Rinkheong has so far progressed that the lines cleared, although having not yet all their posts up and numbered, are sufficiently well marked as to be unmistakeable, so that nothing should prevent the issue of the notification before 1st January 1881 at latest.

183. (*b*)—*Demarcation.*—The *Kasalong* forest. The southern boundary has all been cleared and posts erected along the greater portion. The boundary line now forms a convenient path, almost due east and west from Tintillia below

Myani-mukh to the crest of the ranges bordering the valley. The boundary line of the *Rinkheong* forest has been nearly all cut. It would have been completed if there had not been a difficulty about labour, always the great difficulty in the Chittagong Hill Tracts. It will, as well as that of the *Sungoo*, be completed early next season. As the boundary of *Sitapahar* may be somewhat altered during the settlement, it was not advisable to put up the boundary posts finally.

2.—PROTECTION AND IMPROVEMENT.

184. The following establishment has been entertained:—

4 Foresters.
11 Forest guards.

185. The ranges established are—

1. The Kasalong Range.
2. „ Rinkheong „
3. „ Sitapahar „
4. „ Matamori and Sungoo Ranges.

The sub-division into blocks and beats is not yet arranged.

(*b*)—*Breaches of Forest Rules.*—One case only occurred, viz. that of a forester, who was accused of realizing payment for forest produce and not crediting it in his accounts. He was acquitted.

186. (*c*)—*Roads and Bridges.*—The road referred to in paragraph 165 of last year's report was commenced, and a portion completed. It was lined out for the whole distance, but the line had in several places to be altered. There is probably, in Bengal, no more difficult district in which to construct roads than the Chittagong Hill Tracts; and no district in which there are fewer roads, or in which roads in certain parts are more wanted (a great want is a road to connect the Karnafuli with the Sungoo river, *i.e.* Rangamati with Ruma, without the necessity of, as at present, going round by Chittagong, or at any rate following the jungle path from Chandragona to Bundrabun). That now in course of construction will form one link in the road from Chittagong to Rangamati by the Karnafuli, and will join the forest station at Kaptai by its means and by tea garden roads and the roads of the regulation district, to Chittagong. The country through which it passes consists of a succession of low, conical, steep hills, forming very irregular ranges between tortuous streams, and covered with dense tree and bamboo jungle, in which it is difficult to trace locality. The streams are low down and have to be crossed by bridges, the road thus ascending and descending constantly. The road will, it is hoped, be completed next year.

187. (*d*)—*Buildings.*—The head-quarters bungalow at Rangamati was very nearly completed during the year. It has since been finished at a cost of Rs. 2,500.

188. (*e*)—*Reproductive measures.*—An addition of 40 acres, chiefly on level ground near the river, was made to the Kaptai block of Sitapahar. The Officiating Conservator on his visit found about 30 per cent of vacancies. These will have to be filled up this year, as well as the vacancies in some parts of the area planted in 1878. After this year the line system of planting, which the Officiating Conservator is convinced will be the best and cheapest for Sitapahar, will be introduced.

189. The mahogany plants received from the Superintendent, Royal Botanic Gardens, Calcutta, were put out in different localities about the plantation. This is rather a pity, as the experiment will be much better made by planting in a block where the plants will not be lost sight of. So far they are doing very well. The seed received on 16th July was sown on the 22nd and 28th. It was not very successful, as only 87 plants were reared.

190. Some seeds of the Ceara rubber (*Manihot Glaziovii*) were received on the 10th July from the Superintendent, Royal Botanic Gardens, Calcutta, at the instance of the Inspector-General of Forests. They were sown, 300 in boxes on the 15th, and the rest in August in a small thatched nursery. No signs of germination have been perceived as yet, though the seeds still look quite fresh. They may germinate this year. A few plants of the *Pithecolobium Saman* received are doing very well indeed.

191. The following table shows the rainfall during the year at Kaptai and Rangamati respectively:—

Table shewing the Rainfall in the Sitapahar Reserve, compared with that at Rangamati, during 1879-80.

Month.	Rangamati.		Kaptai.	
	Rainfall in inches.	Number of rainy days.	Rainfall in inches.	Number of rainy days.
April ...	·55	1	·45	1
May ...	10·05	18	8·29	14
June ...	27·54	26	31·80	27
July ...	20·91	26	29·30	28
August ...	13·46	26	17·60	28
September ...	13·93	24	6·99	15
October ...	11·10	15	.....	.....
November ...	.....	.....	.....	.....
December ...	·98	2	1·13	2
January ...	1·60	3	2·56	3
February ...	·18	1	.....	.....
March ...	1·74	5	·43	1
Total ...	102·04	147	91·55	119

192. (*f*)—*Fire protection.*—Special measures were found necessary only for the planted areas in Sitapahar. No fire occurred there, or in any of the reserves.

3.—Yield and Working.

193. The following table shows the produce removed from the reserved forests during the year:—

Description.	Number.	Amount realized.	Rate.	Remarks.
Timber.		Rs. A. P.	Rs. A. P.	
Jarul logs ...	81—126 c. ft.	31 8 0	0 4 0	per c. ft.
Jam " ...	4— 6 "	0 12 0	0 2 0	ditto.
	C. ft. I. D			
Jarul planks ...	10 9 6	3 6 6	0 5 0	ditto.
Tali " ...	84 4 19	13 3 0	0 2 6	ditto.
House posts ...	25	6 4 0	0 4 0	each.
Saplings ...	157	19 10 0	0 2 0	do.
Total under II*a* ...	.....	74 11 6	.....	
Bamboos.				
Ora ...	925	6 7 7	7 0 0	per 1,000
Mitenga ...	8,437	24 0 11	7 0 0	ditto.
Dolu ...	14,068	56 4 4	4 0 0	ditto.
Mooli ...	973,065	1,445 4 5	1 8 0	ditto.
Total under II*c* ...	.....	1,532 1 3	.....	
Other Minor Produce.				
	Bundles.			
Sunn grass ...	47,275	94 9 6	2 0 0	per 1,000
Canes ...	274,864	274 13 0	1 0 0	ditto.
	Mds s.			
Chaulmugri ...	19 25	19 10 0	1 0 0	per maund.
Sunkhola fees ...	.....	208 4 0	.....	
Total under II*e* ...	.....	597 4 6	.....	
Total under II*a*, *c* & *e* ...	.....	2,204 1 3	.....	

4.—Financial Results.

194. These stand as follows:—

	Rs.	Rs.
Receipts		2,204
Charges	A9,613 B9,798	19,411
Deficit ...		17,207

The work of demarcation, and the difficulties of the settlement of the reserves preventing their being finally gazetted, have stood in the way of the increase of the revenue from the reserves during the present year. The revenue of the reserves will, the Officiating Conservator expects, only gradually increase for a few years yet; but he is confident that, as markets are found for the fine timber which the forests contain, the Chittagong reserves, which have great facilities of water transport, will eventually prove a good source of income to the State.

SECTION III.—UNRESERVED FORESTS AND PROTECTED FORESTS.

UNRESERVED FORESTS.

1.—Julpigoree Division.

195. These forests have been worked with the reserves as far as the timber works in the open forest of Apalchand and Muraghat (Malhati and Goshai Hât) are concerned. In the former 86 trees, and in the latter 166 trees, were felled. From Malhati 97 pieces and from Goshai Hât 298, were taken to depôt. It is possible that the areas referred to in paragraph 5 may shortly be proposed to be 'protected' forests, and the present open forests proposed for constitution as 'reserves.'

2.—Chittagong Hill Tracts.

196. The open forests of these hills were during the year under the management of the Deputy Commissioner. Their area is approximately 5,100 square miles.

197. In accordance with the orders of Government, arrangements were entered into during the year, in consultation between the Officiating Conservator and Assistant Conservator of Forests on the one hand, and the Commissioner and Deputy Commissioner on the other, for the introduction from the 1st April 1880 of a new system of management by which the whole of the forests, reserved and open, in the Chittagong Hill Tracts are placed under the charge of the Assistant Conservator, subordinate to the Deputy Commissioner and the Conservator under the provisions of the following rules, which were approved by the Lieutenant-Governor :—

Rules for the administration of Forests in the Chittagong Hill Tracts.

The Conservator of Forests is responsible for, and has the complete control of, all professional, departmental, and financial matters, and he will take the initiative in all these matters as regards the reserved forests. His orders will be communicated to the District Forest Officer through the Deputy Commissioner of the Chittagong Hill Tracts, who will have power to direct the District Forest Officer to suspend action on them, but must report his having done so to the Conservator of Forests and to the Commissioner of Chittagong.

(2.) When on tours of inspection the Conservator will, as a matter of course, give instructions verbally to the District Forest Officer, but all such instructions should be reduced to writing, and should be communicated by the District Forest Officer to the DeputyCommissioner, who must be kept regularly informed of all communications between the Conservator and the District Forest Officer.

(3.) The Conservator will continue to correspond direct with the District Forest Officer in a demi-official manner, but whenever his communications are of the nature of orders, the District Forest Officer must take an early opportunity of submitting them to the Deputy Commissioner.

(4.) In regard to the open or unreserved forests, it will ordinarily rest with the Deputy Commissioner to take the initiative, the management of all forest matters in the district resting with the District Forest Officer acting under the orders of the Deputy Commissioner, who will be assisted, if necessary, with the advice of the Conservator.

(5.) At the commencement of each official year, the District Forest Officer will prepare an annual plan of operations, which will be sent for approval to the Conservator of Forests through the Deputy Commissioner, all differences of opinion being referred to the Commissioner, and if necessary to Government.

(6.) All matters of accounts, establishments, sanctions, &c., will be regulated by the provisions of the Forest Department Code.

198. In addition to the above rules, the following subsidiary rules to facilitate the conduct of office business were agreed to and received the sanction of Government:—

(1.) The Conservator will address all official correspondence to the Assistant Conservator of Forests through the Deputy Commissioner, and enclose it in a cover addressed to the Deputy Commissioner, who will forward it, with his observations and orders, if any, to the Assistant Conservator. In like manner the Assistant Conservator will write to the Conservator through the Deputy Commissioner, who will countersign the letters and forward them.

(2.) A great part of the correspondence between the Assistant Conservator and the Deputy Commissioner, which does not require to be sent to the Conservator, will, for convenience, be carried on in the form of office notes.

(3.) The accounts will not be submitted to the Deputy Commissioner, but direct to the Assistant Comptroller-General; but the copy of the abstract of revenue and expenditure which is now sent to the Conservator will in future be forwarded through the Deputy Commissioner, who will thus be enabled to make any remarks he may think fit.

(4.) Travelling allowance bills will be submitted together once a month to the Conservator through the Deputy Commissioner, who will countersign the forwarding docket. The Conservator will return them after check and passing in the same way.

(5.) The list of rates of payment to be levied on open forest produce will be prepared from those received by the Deputy Commissioner from time to time from the Collector of Chittagong.

(6.) All other matters will be regulated by the Forest Department Code, including that of patronage, the forest officer having the appointment and dismissal of all forest guards, and power to fine foresters and rangers; the appointment and dismissal of foresters and rangers resting with the Conservator. Correspondence on this subject will of course pass through the Deputy Commissioner's hands, who will make any observations he may desire.

199. These new arrangements were started on the 1st April, and will, the Officiating Conservator hopes, work well; they give the Deputy Commissioner the full control over the open forests, while the District Forest Officer will doubtless find his work much simplified from the assistance he may expect from the Deputy Commissioner both as regards the work in the open forests and in the reserves.

200. No change has been made in the system of the collection of tolls as described in the extract from the late Deputy Commissioner's report, published in paragraph 180 of last year's Annual Forest Report.

201. The following are the toll-stations and their establishments:—

River.	Forest Rangers.	Foresters.	Forest Guards.
Fenny (Amli Ghât)	1	...	4
Droong	...	1	3
Sub-stations—			
Haldah.			
Kalapaneea.			
Surtah	...	1	1
Sylock	...	1	4
Sub-station—			
Ishamati.			
Karnafuli (Chandraguna)	...	1	5
Sungoo (Doazari)	...	1	3
Dolu	...	1	3
Sub-stations—			
Hungar.			
Tankawati.			
Matamori (Manikpur)	...	1	3
Eadgong	...	1	1
Bagkhali (Ramoo)	...	1	3
Sub-station—			
Rezu.			
Total ...	1	9	30

202. Besides these, on the Karnafuli river, on which the greater proportion of revenue is received, the rafts are checked by the police officers at Kasalong and Rangamati, and a pass given to the raftsmen for production at the head toll-station at Chundraguna.

203. *Breaches of Forest Rules*—Of the two cases reported last year as pending, one, that against the Matamori Toll Collector, had to be struck off, as the accused was not found. In the other a conviction was obtained. Six further cases were instituted during the year, involving 10 persons, in five of which convictions were obtained.

204. *Buildings.*—Toll-houses were constructed for the stations of Chandraguna (Rs. 100), Sylock (Rs. 60), Ishamati (Rs 20), and Matamori (Rs. 42-3). Repairs were also made to the Sungoo house, and some necessary watch-houses erected. A house and cook-shed for the office establishment at Rangamati was built for Rs. 239-14. The toll-houses on the Bagkhali and Eadgong were blown down in a cyclone in October 1879, and will require re-building.

3.—Yield and Working.

205. The following was the amount of material removed during the year:—

	Number of pieces.
Timber in log	5,317
Do. in boats	2,512
Do. in beams and planks	9,901
Total Timber ...	17,730
Ora and mitenga bamboos	184,031
Dolu	647,140
Mooli	14,249,413
Sunn grass (bundles)	5,008,744
Canes	2,913,452
Gurjun oil, maunds	512

This shows a large increase in exports, chiefly of bamboos, grass, and cane, over the last two years.

4.—Financial Results.

206. The actual receipts and expenditure were as follow:—

	Rs.	Rs.
Receipts		58,246
Charges	A 7,335 B 80	7,415
Surplus ...		50,831

showing a considerable improvement over last year.

PROTECTED FORESTS.

3.—SUNDERBANS DIVISION.

1.—Area and Boundaries.

207. (*a*)—*Area.*—No change occurred during the year.

208 (*b*)—*Boundaries.*—Wherever any possibility of mistake can happen, the boundaries of the forests have been marked by boards nailed to them at the corners of the creeks.

2.—Protection and Improvement.

209. (*a*)—*Establishments.*—The following was the scale on the 31st March 1880:—

2 Forest rangers.
9 Foresters.
6 Forest guards.

210. The protected forests have been divided into two ranges, each comprising a number of toll-stations. These are as follows:—

Basirhat Range—

Stations ... { Mutlah. Samukpatha. Bogi.

Diamond Harbour Range—

Stations ... { Saterbag Tangara khal.

211. The opening of the Samukpatha station at the mouth of Tolly's Nullah on the Bidyadurri river has rendered it unnecessary to retain Rampura; and the locality of the Mooreegunga station has been transferred to the more convenient locality of Tangara khal on the Hooghly. There are also six sub-stations.

212. (*b*)—*Breaches of Forest Rules.*—Seven cases were instituted during the year, involving 25 persons. In three cases convictions were obtained, two resulted in acquittal, while two are still pending.

213. (*c*)—*Buildings and Boats.*—Station-houses have been erected at the stations of Samukpatha and Saterbag, and the sub-station of Bamunghatta, at an aggregate cost of Rs. 370. Three more houses will still have to be erected to complete the requirements of the protected forests.

214. One teak copper-fastened and bottomed boat *Aries* has been built for the Samukpatha station, and a second has been completed since the end of the year. The work of providing boats will be continued during the present year, so that the stations and sub-stations may be properly provided. Boats of a more seaworthy character are required for the protected forests than are necessary in the reserves.

3.—Yield and Working.

215. The collection of revenue in the protected forests commenced on the 1st July 1879, and the quantity of material removed during the year is as follows:—

Description of Timber.	Boats.	Rafts.	Logs.	Maunds.	Amount realized and due.	Rate.	Remarks.
					Rs. A. P.	Rs. A. P	
Kirpa posts	15	. ...	.	4,521	70 10 3	1 9 0	per 100 maunds.
Pussur „	49	. ...	28	10,712	261 2 0	1 9 0	ditto.
Goran „	211	....		58,501	911 14 3	1 9 0	ditto.
Sundri „	1	. ...	40	697½	43 9 3	6 4 0	ditto.
Do. „	2	.....		1,107	17 4 9	1 9 0	ditto.
Total IIa ..	278	.	68	81,398½	1,304 8 6	.....	
Firewood	1,003	.....	.....	5,19,755	8,121 2 9	1 9 0	ditto
Total IIb ..	1,003	....	....	5,19,755	8,121 2 9	.....	
Shells	155	.. ...	... .	42,107	657 14 9	1 9 0	ditto.
Hital	254		.....	1,26,795	1,981 2 9	1 9 0	ditto.
Goran bark	9	...	... .	1,172	18 5 0	1 9 0	ditto.
Wax and honey	9	...	. .		40 0 0	1 0 0	ditto.
Total IIc ..	427	.	...	1,70,074	2,697 6 6	....	
Grand Total under II *a*, *b* and *c*	1,808	. ...	68	7,71,227½	12,123 1 9	.....	

4.—Financial Results.

216. These stand as follows:—

		Rs.	Rs.
Receipts			12,124
Charges	A	3,462	6,744
	B	3,282	
	Surplus ...		5,380

as given by the Deputy Conservator in his arrangement of figures. Considering the area of the protected forests at 1,875 square miles, the surplus shows, for eight months' collections, a net revenue per square mile of Rs. 2-13-4.

SECTION IV.—GENERAL REMARKS.

217. During the year the Inspector-General of Forests again visited the province, and in company with the Officiating Conservator travelled through the Darjeeling and Teesta Divisions, as well as portions of Kurseong and Julpigoree. In addition to these, the Officiating Conservator also visited the Buxa and Chittagong Divisions, and the protected forests of the Sundurbans.

218. The *health* of the superior establishment has been better than last year, but that of the subordinate establishment has not been good, especially in the Kurseong, Sunderbans and Palamow Divisions; from the last the death of two forest guards from cholera is reported, while in the first, the Terai portion of which contains perhaps the most unhealthy ranges in Bengal, the general health of the establishment has not been good. Some of the Bengali rangers and foresters seem to stand the difficult climate of the forest tracts well enough, but they are few, and, as a rule, it is difficult to get Bengali rangers of sufficiently strong constitution to stand the exposure of forest work. Stricter rules regarding health certificates have, however, been introduced for the appointment of subordinates. The constant ill-health of the subordinates in the Sundurbans has necessitated continual giving of leave and consequent inconvenience.

219. The death of Mr. H. R. Ring, Assistant Conservator in charge of the Julpigoree Division, was adverted to in last year's report. Mr. Jacob, Deputy Conservator, has obtained extension of leave for a further six months. Since the close of the year one officer, Mr. R. N. Anstruther, has resigned.

220. The Conservator of Forests, Dr. W. Schlich, on his return from leave in January 1880, was transferred to the Punjab, and the writer of this report has continued to officiate.

221. *Officers' Services.*—Mr. G. W. Strettell, Deputy Conservator of Forests, 2nd grade, was in charge of the Sunderbans Division during the year. He has organized the work in the protected forests, and has managed his division in a satisfactory manner.

Mr. J. C. McDonell, Deputy Conservator of Forests, continued in charge of the Darjeeling Division, the works of which he continued to carry on with his usual energy, and in which he received much assistance from Mr. L. G. Smith, Sub-Assistant Conservator.

Mr. H. H. Davis, Assistant Conservator, 1st grade, returned from furlough in December 1880, and was posted to the Hazaribagh Division, where he at once took up the work of inspection of the Saranda forests, on which he has submitted a careful report. Mr. W. Johnston, Assistant Conservator of Forests, officiating 1st grade, was transferred to the Palamow Division in September 1879. He also held charge of the Hazaribagh Division until Mr. Davis' return from leave. He has done good work in starting the fire protection of his division. Mr. E. Fuchs, Assistant Conservator, 2nd grade, was in charge of the Teesta Division during the year. The Officiating Conservator would be glad to have seen him display rather more energy in the development of his important division. Messrs. G. A. Richardson, E. G. Chester, and F. B. Manson, Assistant Conservators, 2nd grade, continued during the year in charge of the Buxa, Chittagong, and Kurseong Divisions respectively, and have done excellent work.

Mr. W. M. Green, Officiating Assistant Conservator of Forests, was transferred on his return from leave in October 1879 to the Julpigoree Division, the charge of which had been held for some months by Mr. Manson in addition to his own work in Kurseong. The Officiating Conservator is glad to express his satisfaction with Mr. Green's work.

Mr. W. Hobson was appointed a Sub-Assistant Conservator on probation, and posted to the Chittagong Division, which he joined on 13th December 1879. He has set to work with energy, and promises to become a good officer.

ANNUAL FORM No. 45.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Reserved Forests, 1879-80.

Division.	Name of Forest and Civil District.	Area on 1st April 1879.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March 1880.		Total of each Division.		Number and date of Notification of additions and transfers, &c.	Remarks.
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
	Darjeeling District.												
Darjeeling.	Goompahar Range ...	12	7,438	1	710	.....	.....	13	8,148				
	Tukdah " ...	16	10,467	.....	.....	4¼	2,951	11¾	7,516				
	Rangbul " ...	9	5,687	.....	.....	.....	.....	9	5,687				
										33¾	21,351		
Teesta. (West of the Teesta.)	Badamtam ...	1	569	.....	.....	.....	.....	1	569				
	Sumbong ...	2¾	1,741	.....	.....	.....	.....	2¾	1,741				
	Pashok ...	1¾	1,011	.....	.....	.....	.....	1¾	1,011				
	Mangwa ...	1¼	995	.....	.....	.....	.....	1¼	995				
	Reyang ...	2	1,255	.....	.....	.....	.....	2	1,255				
	Geeljong ...	3	1,697	.....	.....	.....	.....	3	1,697				
	Seemjhora ...	¾	842	.....	.....	.....	.....	¾	842				
Teesta. (East of the Teesta.)	Nazeeok ...	3	1,786	.....	.....	.....	.....	3	1,786				
	Tunang ...	1½	966	.....	.....	.....	.....	1½	966				
	Rinkinpung ...	6½	4,170	.....	.....	.....	.....	6½	4,170				
	Kalimpung ...	5	3,180	.....	.....	.....	.....	5	3,180				
	Dumsong ...	23	14,640	.....	.....	.....	.....	23	14,640				
	Payong ...	1	470	.....	.....	.....	.....	1	470				
	Maydong ...	4½	2,900	.....	.....	.....	.....	4½	2,900				
	Khempung ...	5½	3,580	.....	.....	.....	.....	5½	3,580				
	Loolagaon ...	4	2,703	.....	.....	.....	.....	4	2,703				
										66	42,015		
Kurseong.	Dhobijhora ...	1	499	.....	.....	.....	.....	1	499				
	Sibakhola ...	1½	408	.....	.....	.....	.....	1½	408				
	Merig ...	3	1,934	.....	.....	.....	.....	3	1,934				
	Manjua ...	2	1,112	.....	.....	.....	.....	2	1,112				
	Khyrbani ...	3	1,984	.....	.....	.....	.....	3	1,984				
	Koohein ...	1	514	.....	.....	.....	.....	1	514				
	Mechi ...	2	1,477	.....	.....	.....	.....	2	1,477				
	Soorjbur ...	.....	52	.....	.....	.....	.....	.....	52				
	Lohagarhi ...	1	584	.....	.....	.....	.....	1	584				
	Manjha ...	2½	1,541	.....	.....	.....	.....	2½	1,541				
	Halasun ...	3	1,718	.....	.....	.....	.....	3	1,718				
	Dulka Jhar ...	8	5,158	.....	.....	.....	.....	8	5,168				
	Bamunpokri ...	2	1,372	.....	.....	.....	.....	2	1,372				
	Raktl ...	.....	195	.....	.....	.....	.....	.....	195				
	Lama Gumba ...	.....	488	.....	.....	.....	.....	.....	488				
	Kooklong ...	1½	1,011	.....	.....	.....	.....	1½	1,011				
	Poondig ...	3	2,044	.....	.....	.....	.....	3	2,044				
	Shukna ...	1½	1,050	.....	.....	.....	.....	1½	1,050				
	Latpanchor ...	8½	5,493	.....	.....	.....	.....	8½	5,493				
	Goroomara ...	14	8,780	.....	.....	.....	.....	14	8,780				
	Sitong-Teesta ...	20	12,900	.....	.....	.....	.....	20	12,900				
	Rangamati ...	2	1,177	.....	.....	.....	.....	2	1,177				
	Rungdung ...	1	700	.....	.....	.....	.....	1	700				
	Noonamattia ...	1	428	.....	.....	.....	.....	1	428				
	Moorgong ...	4	2,375	.....	.....	.....	.....	4	2,375				
	Mahanadi ...	.....	114	.....	.....	.....	.....	.....	114				
	Champasari ...	5	3,063	.....	.....	.....	.....	5	3,063				
	Sivoke ...	7½	4,734	.....	.....	.....	.....	7½	4,734				
										99	62,885		
	Julpigoree District.												
Julpigoree.	Apalchand ...	26	16,640	.....	.....	.....	.....	26	16,640				
	Tondu ...	73	46,720	.....	.....	.....	.....	73	46,720				
	Dainah ...	24	15,360	.....	.....	.....	.....	24	15,360				
	Muraghat ...	17	10,880	.....	.....	.....	.....	17	10,880				
	Rehti ...	.....	.....	4½	2,923	.....	.....	4½	2,923	.....	.....	10th March 1880.	
	Dulgaon ...	2	1,375	.....	.....	.....	.....	2	1,375				
	Dumchi ...	3	1,920	2	1,142	.....	.....	5	3,062	.....	.....	Ditto.	
	Khairbari ...	3	1,775	.....	.....	.....	.....	3	1,775				
	Tecti ...	.....	.....	12	7,795	.....	.....	12	7,795	.....	.....	Ditto.	
										160½	106,530		
Buxa.	Borojhar ...	55	35,200	.....	.....	.....	.....	55	35,200				
	Buxa ...	144	92,160	.....	.....	.....	.....	144	92,160				
	Raidak ...	20	12,800	.....	.....	.....	.....	20	12,800				
	Dhampara ...	11	7,040	.....	.....	.....	.....	11	7,040				
	Bholka ...	20	12,800	.....	.....	.....	.....	20	12,800				
										250	160,000		
	Lohardugga District.												
Palamow.	Kechki ...	1	640	.....	.....	.....	.....	1	640				
	Betla ...	11	7,040	.....	.....	.....	.....	11	7,040				
	Saidope ...	43	27,520	.....	.....	.....	.....	43	27,520				
	Kumandi ...	14	8,960	.....	.....	.....	.....	14	8,960				
	Ramundag ...	17	10,880	.....	.....	.....	.....	17	10,880				
	Barasand ...	52	33,280	.....	.....	.....	.....	52	33,280				
	Seema ...	41	26,240	.....	.....	.....	.....	41	26,240				
										179	114,560		
	Shahabad District.												
	Rhotas ...	20	12,800	.....	.....	20	12,800	.....	.....	.....	.....	14th October. 1879.	
	Rohul ...	11	7,040	.....	.....	11	7,040	.....	.....	.....	.....	Ditto.	
	Bans-i-koli ...	6	3,840	.....	.....	6	3,840	.....	.....	.....	.....	Ditto.	
	24-Pergunnahs District.												
Sunderbans.	Satkhira ...	382	244,480	.....	.....	.....	.....	382	244,480				
	Jessore District.												
	Khulna ...	699	447,360	.....	.....	.....	.....	699	447,360				
	Bagirhat ...	500	320,000	.....	.....	.....	.....	500	320,000				
										1,581	1,011,840		
	Chittagong Hill Tracts												
Chittagong.	Maiani ...	339	216,960	.....	.....	.....	.....	339	216,960				
	Sitapahar ...	8	5,120	.....	.....	.....	.....	8	5,120				
	Matamori ...	223	142,720	.....	.....	.....	.....	223	142,720				
										570	364,800		
	Total ...	2,967	1,898,042	19½	12,570	41½	26,631	2,945	1,883,981	2,945	1,883,981		

Annual Form No. 45.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Protected Forests, 1879-80.

Division.	Name of Forest and Civil District.	Area on 1st April 1879.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March 1880.		Number and date of Notification of additions and transfers, &c.	Remarks
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
Sunderbans.	*24-Pergunnahs District.*										
	Basirhat	1,000	640,000	.....	.....	.....	.....	1,000	640,000	.....	The 'open' forests of the Julpigoree district, and the 'unreserved' forests of the Chittagong Hill Tracts, are still under forest management, but are not here included, as they have not been definitely gazetted as 'protected forests.'
	Barripore	325	208,000	.....	.....	.....	.....	325	208,000		
	Diamond Harbour ...	526	336,640	.....	.....	.....	.....	526	336,640		
	Lot 165	24	15,360	.....	.....	.....	.....	24	15,360		
	Jessore District.										
	Khulna ... ... (Lots 216, 224, 225)	50	32,000	.....	.....	.....	.....	50	32,000		
	Julpigoree District.										
Julpigoree	Muraghat	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 square miles, 5,120 acres, *open* forests now under settlement as 'reserves' or 'protected forests.'
	Chittagong Hill Tracts.										
Chittagong	Hill Tracts	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,100 square miles of 'open' forests under management for the collection of revenue.
	Total ...	1,925	1,231,040	.....	.....	.....	.....	1,925	1,231,040		

Annual Form No. 46.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Area of Plantations, 1879-80.

Division.	Name of plantation.	On 1st April 1879.		During 1879-80.		On 31st March 1880.		Remarks.
		Area.	Total cost.	Area added.	Cost.	Total area.	Total cost.	
		Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Darjeeling ...	Rangbul	247	16,619 5 10	.....	872 12 6	247	17,492 2 4	Expenditure on nurseries chiefly.
	Dooteria	2	633 12 6	44	632 1 7	46	1,265 14 1	
	Sepoydura	.....	.....	14	202 4 3	14	202 4 3	
	Poobong	2	328 0 3	.....	371 3 0	2	699 3 3	
	Rangirám	10	1,483 6 3	23	659 8 9	33	2,142 15 0	
	Senchul	.....	.....	½	29 11 3	½	29 11 3	Nursery.
	Poomong	.....	.....	3	21 12 0	3	21 12 0	
Kurseong ...	Dhobijhora	13	32 0 0	.....	.....	13	32 0 0	
	Bamunpokri	215	31,244 13 7	9	2,483 5 9	224	33,728 3 4	
Julpigoree ...	Falakata	3	229 12 11	.....	.....	3	229 12 11	
Buxa	Jamguri: Block I, compt. 25	14	1,058 6 0	5	440 11 0	19	1,499 3 0	Expenditure chiefly on nurseries this year.
	Jamguri: " I " 26	1	41 0 0	4	807 4 0	5	848 4 0	
	Jamguri: " II ...	21	329 5 0	.....	69 6 0	21	398 11 0	
Sunderbans ...	Baobab Plantation	1	183 13 3	.....	87 6 9	1	271 4 0	Opening balance altered to correct mistake in former year's returns.
Chittagong ...	Pahartalli	5	324 14 6	.....	.....	5	324 14 6	
	Sitapahar	265	24,925 0 11	40	4,286 3 0	305	29,211 3 11	
	Total ...	799	77,483 13 0	142½	10,963 9 10	941½	88,397 6 10	

* This is 15 acres less than the area given last year. The difference is due to the increased area of 15 acres of last year's report having been added in that of 1877-78 as well, the fact not being before noticed.

ANNUAL FORM No. 47.

FOREST DEPARTMENT, BENGAL.

Area of Forest Tracts protected from fire during the dry season of 1879-80.

Division.	Forest Tracts.	Up to 15th June.		During dry season of 1879-80.				Total cost up to 30th June.	Year when protection commenced.	Remarks.
		Area actually protected.	Total cost.	Area attempted to be protected.	Failures.	Area actually protected.	Amount expended.			
		Acres.	Rs. A. P.	Acres.		Acres.	Rs. A. P	Rs. A. P.		
Darjeeling ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	No fires occurred, nor were special works necessary.
Teesta ...	Rangit Range ...	.....	.....	7,620	.....	7,620	76 15 0	76 15 0	1879-80	
	Chel " ...	.....	.....	31,285	80	31,205	105 0 0	105 0 0	.....	
	Kalimpung " ...	.....	.....	27,277	1	27,276	58 0 0	58 0 0	.....	
Kurseong ...	Sukna Range ...	.....	593 14 8	40,000	410	39,590	1,269 8 3	1,863 1 6	1876-77	Commencement in Sivoke forest. Protection now extended to the whole range.
	Bamunpokri ...	1,253	2,835 11 9	1,373	.....	1,373	563 0 6	3,398 12 3	1876-77	
	Balasun Range. Dulkajhar.	.....	21 12 0	5,188	.....	5,188	36 0 0	57 12 0	1878-79	
	Balasun Range. Manjha ...	.....	.....	1,541	.....	1,541	41 7 0	41 7 0	1879-80	The rest of the range, as also the Kurseong Range, was protected with the regular establishment.
Julpigoree ...	Apalchand	4,160	.....	16,640	1,200	15,440	458 4 0	458 4 0	1878-79	
	Tondu	31,150	.....	46,720	.....	46,720	5 14 0	5 14 0	.....	
	Muraghat	5,450	408 14 0	10,900	.....	10,900	.....	408 14 0	1872-73	
	Dulgaon	.....	.....	1,375	.....	1,375	.....	.....	1879-80	Protection belt made and protection assured with the regular establishment
	Dumchi	.....	.....	3,062	.....	3,062	.....	.....	.....	The Dainah, Rehti, Teeti and Khairbari forests were also protected as possible.
Buxa ...	Borojhar	.....	.....	15,360	640	14,720	315 12 0	315 12 0	1879-80	
	Buxa	53,980	2,478 13 9	92,160	640	91,520	6,071 2 8	8,550 0 5	1876-77	
	Bholka	5,760	332 2 0	12,800	.....	12,800	642 0 0	974 2 0	1877-78	The Raidak and Dhampara forests were also protected as far as possible with the regular establishment. The former was most of it burnt far as over.
Palamow ...	Harnomand Range ...	.....	.....	35,200	8,960	26,240	372 14 6	372 14 6	1879-80	
	Kumandi and Ramundag.	.....	.....	19,840	5,120	14,720	362 14 9	362 14 9	.....	
	Barasand	.....	.....	33,280	6,400	26,880	364 3 6	364 3 6	.....	
	Seema	.....	.....	26,240	.....	26,240	366 5 0	366 5 0	.....	
Hazaribagh ...	Koderma	.....	.....	19,720	1,280	18,440	.....	.....	.....	Protection attempted with the regular establishment.
Chittagong ...	Sitapahar	5,000	278 2 0	305	.....	305	225 3 0	503 5 0	1877-78	The figures differ from those given last year. Owing to the infrequency of fires, no protection works beyond the planted area are necessary. The amount expended in former years was last year by mistake omitted, being before charged under plantation. It is now correct.
	TOTAL ...	106,753	6,949 5 9	447,836	24,731	423,105	11,334 3 2	18,283 8 11		

NOTE.—It is not considered necessary any longer to enter the Baobab plantation in the Sunderbans Division.

ANNUAL FORM No. 48.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Prosecutions for Breaches of Forest Rules, 1879-80.

FOREST DIVISION AND CIVIL DISTRICT.	Injury to forests by fire.		Unauthorized felling or appropriation of wood and minor forest produce.		Grazing without permission or in tracts in which grazing is prohibited.		Other offences.		TOTAL.				REMARKS.
									Prosecutions.		Convictions.		
	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
Darjeeling District—													
Darjeeling Division ...	5	9	5	7	6	6	...	.....	16	22	16	22	
Teesta Division ...	...	.....	2	4	1	1	...	.....	3	5	2	4	One man escaped before trial.
Kurseong Division ...	1	2	...	.....	...	.....	...	.....	1	2	1	2	
Julpigoree District—													
Julpigoree Division ...	1	1	1	3	...	.....	...	.....	2	4	2	4	One pending from last year.
Buxa Division ...	1	1	...	.....	2	4	1	1	4	6	4	6	
Lohardugga District—													
Palamow Division ...	1	1	1	7	...	.....	2	8	4	16	3	9	One case involving seven men still pending.
Hazaribagh District—													
Hazaribagh Division ...	...	.....	3	4	...	.....	...	.....	3	4	3	4	
24-Pergunnahs District—													
Sunderbans Division ...	...	.....	7	25	...	.....	5	6	12	31	7	25	Two acquittals; three cases pending.
Jessore District—													
Sunderbans Division ...	...	.....	10	42	...	.....	3	9	13	51	12	35	Four acquittals.
Backergunge District—													
Sundurbans Division ...	...	.....	1	4	...	.....	...	.....	1	4	...	.....	Acquittal.
Chittagong Hill Tracts District—													
Chittagong Division ...	...	.....	...	.....	...	.....	1	1	1	1	...	.....	Acquittal.
Chittagong Hill Tracts ...	...	.....	1	2	...	.....	6	10	7	12	6	9	
Total ...	9	14	31	98	9	11	18	35	67	158	56	120	

ANNUAL FORM No. 49.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Summary of Revenue of the different Divisions, 1879-80.

BUDGET HEADS RECEIPTS.	Direction.	Darjeeling Division.	Teesta Division.	Kurseong Division.	Julpigoree Division.	Buxa. Division.	Palamow Division.	Hazaribagh Division.	Sundurbans Division.	Chittagong Division.	Chittagong Hill Tracts Division.	TOTAL.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	R. A. P.
I.—Timber and other produce removed from the forests by Government Agency—												
a. Timber	.....	7 2 0	1,452 10 2	28,037 8 1	3,252 14 1	59,396 12 2	.....	.....	.....	.....	.....	92,146 14 6
b. Firewood and charcoal	.....	43,246 12 8	.....	.....	7 8 0	.....	.....	.....	.....	.....	.....	43,254 4 8
c. Bamboos	.....	.....	.....	1 10 0	.....	.....	.....	.....	.....	.....	.....	1 10 0
d. Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Grass and other minor produce ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
II.—Timber and other produce removed from the forests by consumers or purchasers—												
a. Timber	.....	19,866 1 6	2,647 0 0	6,221 0 0	5,662 4 0	4,271 0 0	11 15 0	0 6 6	67,746 15 0	74 11 6	15,239 0 6	1,21,740 6 0
b. Firewood and charcoal	.....	140 0 0	10 8 0	1,488 10 9	.....	123 3 0	5 3 0	16 12 3	89,422 10 9	.....	93 4 6	91,300 9 3
c. Bamboos	.....	371 4 0	464 8 5	317 4 0	8 0 0	25 2 11	25 12 0	0 1 0	.....	1,532 1 3	24,298 14 3	27,042 15 10
d. Grazing and fodder grass	.....	3,364 0 0	91 14 0	1,613 12 0	697 12 0	324 0 3	803 3 2	.....	.....	.....	.....	6,894 9 5
e. Other minor produce	.....	69 0 0	207 15 9	542 15 9	186 0 0	15 0 0	235 4 0	23 13 9	41,983 13 9	597 4 6	11,938 1 3	55,869 4 9
III.—Confiscated, drift and waif wood	.....	3 4 0	28 8 0	477 7 0	553 3 0	.....	.....	.....	169 9 3	.....	.....	1,230 15 3
IV.—Revenue from forests not managed by Government—												
a. Duty of foreign timber and other forest produce	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Revenue from shared and private forests.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
V.—Miscellaneous—												
a. Fines and forfeitures	.....	460 8 0	5 0 0	120 8 0	12 0 0	.....	.....	.....	9 13 9	.....	.....	607 13 9
b. Refunds	65 2 0	.....	.....	5 9 6	4 0 0	0 3 2	.....	.....	0 4 3	.....	.....	75 2 11
c. Other sources	.....	1,033 9 3	137 4 0	1,220 8 9	34 10 8	196 8 0	15 8 6	.....	105 0 6	.....	6,677 0 0	9,419 1 8
Total Receipts ...	65 2 0	68,561 9 5	5,045 4 4	40,046 13 10	10,417 3 9	64,351 2 6	1,096 13 8	41 1 6	1,99,448 3 3	2,204 1 3	58,246 4 6	4,49,523 12 0

Summary of Expenditure of the different Divisions, 1879-80.

A.—Conservancy and Works.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
I.—Timber and other produce removed from the forests by Government Agency—												
a. Timber	.....	25 14 2	361 15 0	5,632 15 3	1,375 13 3	27,648 0 3	.....	.....	.....	.....	.....	35,044 9 11
b. Firewood and charcoal	.....	30,065 9 9	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,065 9 9
c. Bamboos	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
d. Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Grass and other minor produce ...	.....	.....	2 0 0	.....	.....	.....	.....	.....	.....	.....	.....	2 0 0
II.—Timber and other produce removed from the forests by consumers or purchasers ...	.....	.....	.....	.....	.....	.....	.....	.....	17,455 13 8	177 2 0	6,807 1 6	24,440 1 3
III.—Confiscated, drift and waif wood	.....	.....	.....	.....	88 8 0	.....	.....	.....	6 8 0	.....	.....	95 0 0
IV.—Revenue from forests not managed by Government—												
a. Duty on foreign timber and other forest produce	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Revenue from shared and private forests	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
V.—Rent of leased forests and payments to shareholders in forests managed by Government	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
VI.—Live-stock, Stores, Tools and Plant—												
a. Purchase of cattle	.....	.....	.....	.....	.....	4,800 0 0	.....	.....	.....	.....	.....	4,800 0 0
b. Feed and keep of cattle	.....	.....	125 5 11	2,084 2 5	979 4 3	2,801 8 9	545 8 5	.....	.....	.....	.....	6,535 13 9
c. Stores, tools and plant	.....	255 2 0	173 11 0	38 0 0	56 0 6	197 0 0	6 8 0	193 0 0	96 14 6	.....	26 0 0	1,044 4 0
VII.—Communications and Buildings—												
a. Roads and bridges	.....	259 8 0	490 12 0	1,624 4 7	123 15 0	1,406 15 8	.....	.....	.....	671 13 3	.....	4,577 4 6
b. Buildings	.....	540 3 6	2,723 8 3	5,612 7 10	299 8 11	931 9 0	38 15 0	.....	652 7 6	1,888 7 8	483 5 0	12,174 8 8
c. Other works	.....	.....	.....	.....	.....	.....	.....	.....	34 15 0	.....	.....	34 15 0
VIII.—Demarcation, improvement and extension of forests—												
a. Demarcation	.....	509 12 3	3,345 8 9	652 7 2	1,599 7 2	1,048 3 6	26 0 0	34 2 0	193 4 0	1,295 7 5	9 10 0	8,713 14 3
b. Compensation for land and rights ...	.....	.....	.....	2 0 0	.....	.....	391 5 6	.....	.....	965 0 0	.....	1,358 5 6
c. Surveys and working-plans	.....	.....	.....	3 11 6	.....	.....	.....	.....	.....	87 8 11	.....	91 4 5
d. Plantations	.....	2,789 5 4	.....	2,483 5 9	.....	1,317 5 0	.....	.....	87 6 9	4,286 3 0	.....	10,963 9 10
e. Protection from fire...	.....	152 2 6	7 3 0	1,356 6 3	504 14 0	4,468 4 5	718 8 8	.....	.....	224 7 6	.....	7,431 14 4
f. Other works	.....	3 10 9	.....	211 8 11	0 8 0	112 8 0	.....	.....	.....	.....	.....	328 3 8
IX.—Miscellaneous—												
a. Refunds	309 3 0	.....	.....	.....	90 0 0	.....	.....	.....	24 8 0	.....	.....	423 11 0
b. Law charges	.....	.....	.....	.....	7 11 3	10 5 0	.....	.....	21 12 0	.....	.....	39 12 3
c. Other charges	374 11 0	366 10 6	12 13 6	113 11 0	3 7 0	177 0 0	.....	.....	61 1 0	16 15 0	3 8 0	1,129 13 0
Total A.—Conservancy and Works ...	683 14 0	34,967 14 9	7,241 13 5	19,815 0 8	5,129 1 4	44,918 11 7	1,726 13 7	229 2 0	18,634 10 5	9,613 0 9	7,334 8 6	1,50,294 12 8
B.—Establishments.												
I.—Salaries—												
a. Conservators	12,000 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,000 0 0
b. Superior Officers	3,419 5 10	8,460 0 0	4,950 0 0	4,200 0 0	2,220 11 2	4,200 0 0	5,000 0 0	3,025 5 4	8,392 10 5	5,389 0 6	.....	49,197 1 3
c. Subordinate forest and depôt establishments	.....	4,036 5 4	2,617 8 2	4,202 15 3	2,743 15 0	4,559 10 8	3,189 4 10	414 3 0	13,643 7 11	2,416 4 8	.....	37,223 10 10
d. Office establishments	3,995 14 11	735 0 0	604 4 0	779 7 3	756 0 0	1,189 9 4	550 5 4	49 5 11	2,462 4 7	812 4 9	.....	11,934 8 1
e. Deputation and special allowances ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
II.—Travelling allowances—												
a. Conservators	965 14 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	965 14 0
b. Superior Officers	739 13 0	1,059 6 1	1,087 10 0	892 5 6	536 0 0	603 15 0	1,057 8 0	478 3 3	369 6 0	986 13 9	.....	7,811 0 7
c. Subordinate forest and depôt establishments	.....	150 15 3	162 11 3	164 0 4	48 14 9	189 3 3	.....	.....	34 1 11	17 5 6	.....	767 4 3
d. Office establishments	235 15 7	11 10 2	89 15 7	.....	5 2 9	151 14 3	31 1 0	1 5 0	11 4 6	71 5 9	.....	609 10 7
III.—Contingencies—												
a. Stationery	3 8 0	3 0 0	.....	.....	0 8 0	.....	.....	.....	5 12 0	.....	24 1 3	36 13 3
b. Carriage of tents and records	54 15 0	10 0 6	116 1 6	42 3 6	11 7 0	17 4 0	74 6 0	.....	7 2 0	34 11 9	.....	368 3 3
c. Rents, rates, and taxes	609 0 0	300 0 0	8 0 0	240 0 0	19 12 9	.....	240 0 0	.....	1,212 2 0	.....	.....	2,619 14 9
d. Pay of police guards	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Official postage	222 3 0	25 2 0	25 12 0	42 12 6	31 3 0	91 5 6	15 2 0	10 8 0	165 8 0	36 7 0	19 0 0	675 15 0
f. Sundries	521 12 10	82 11 6	84 6 9	35 4 6	90 13 5	166 11 6	93 11 0	21 15 0	125 4 0	34 0 3	46 6 0	1,303 0 9
Total B—Establishments ...	22,759 6 2	14,814 2 10	9,746 5 3	10,539 0 10	6,464 7 10	11,169 9 6	10,251 6 2	4,000 13 6	25,838 15 4	9,796 5 11	80 7 3	1,25,453 0 7
GRAND TOTAL OF EXPENDITURE ...	23,443 4 2	49,782 1 7	16,988 2 8	30,354 1 6	11,593 9 2	56,088 5 1	11,978 3 9	4,229 15 6	44,463 9 9	19,411 6 8	7,414 15 9	2,75,747 11 7

The 3rd July 1880.

Countersigned.

A. L. HOME,
Asst. Comptroller General, Forests.

ANNUAL FORM No. 50.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Dr. *Account Current for the year* 1879-80. *Cr.*

	Rs. A. P.	Rs. A. P.
To balance in hand on 1st April 1879 ...	5,835 5 5	5,835 5 5
,, Revenue received during the year ...	4,49,523 12 0	4,49,523 12 0
,, Remittances from State Treasuries ...	2,78,971 7 1	2,78,971 7 1
,, Government of India—Remittances by transfer from Mathematical Instrument Department	181 2 0	181 2 0
,, Government of India—Remittances by transfer from Military Department, Marine	2 1 0	2 1 0
,, Government of India Fund Deductions—Uncovenanted Service Family Pension Fund	1,014 14 2	1,014 14 2
,, Advances recoverable	1,29,098 14 7	1,29,098 14 7
,, To recovery of advance made by Accountant-General, Bengal, to Mr. Leeds, Conservator of Forests in Bengal, on the 9th January 1868. *Vide* Comptroller-General's No. 415, dated 1st June 1880, to Conservator	374 11 0	374 11 0
,, Inter-divisional transfers	10,420 11 5	10,420 11 5
,, Suspense account	1,113 4 0	1,113 4 0
TOTAL ...	.....	8,76,536 2 8

	Rs. A. P.	Rs. A. P.	Rs. A. P.
By expenditure during the year ...	A. 1,50,294 11 0; B. 1,25,453 0 7	2,75,747 11 7	2,75,747 11 7
By remittance to State Treasuries ...		3,65,312 8 5	3,65,312 8 5
,, ,, ,, Public Works Department, Civil Works ...		21,749 5 2	21,749 5 2
,, ,, ,, Military ,, ...		8,503 12 0	8,503 12 0
,, ,, ,, Northern Bengal State Railway ...		45,169 9 0	45,169 9 0
,, ,, ,, Military Department, Commissariat ...		11,166 6 5	11,166 6 5
,, ,, ,, Telegraph Department		201 0 0	201 0 0
,, ,, ,, Jail Department ...		437 2 0	437 2 0
,, ,, ,, Government, British Burmah ...		10 7 2	10 7 2
,, ,, ,, Government, Punjab ...		283 5 4	283 5 4
,, Suspense		1,059 1 0	1,059 1 0
,, Inter-divisional transfers		10,420 11 5	10,420 11 5
,, Advances recoverable		1,35,284 10 9	1,35,284 10 9
,, Balance		1,190 8 5	1,190 8 5
TOTAL ...		.....	8,76,536 2 8

The 3rd July 1880.

Countersigned.
A. L. HOME,
Asst. Comptroller General, Forests.

ANNUAL FORM No. 51.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Annual Statement of Outstandings and Liabilities on account of Contractors and Disbursers, 1879-80.

DIVISION.	DEPARTMENT DEBTOR. At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	DEPARTMENT CREDITOR. At commencement of year.	Payments made during year.	At close of year.	BALANCE DUE. To Department (outstandings.)	By Department (liabilities.)
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	.....	1,398 8 1	1,398 8 1	7 1 10	1,461 15 4	1,469 1 2	70 9 1	.....
Darjeeling	200 0 0	8,569 2 7	8,769 2 7	330 13 1	8,504 4 8; (a)200 0 0	9,135 1 7; 200 0 0	565 15 0	.....
Kurseong	68 7 3	3,504 9 8	3,573 0 11	651 7 8	3,592 8 4	4,243 15 0	739 3 4	68 7 3
Teesta	.....	10,047 0 0	10,047 0 0	1,428 12 0	10,029 4 8	11,458 0 8	1,411 0 3	.....
Julpigoree	.....	4,712 1 7	4,712 1 7	550 10 9	4,547 7 2	5,098 1 11	386 0 4	.....
Buxa	.....	50,048 14 8	50,048 14 8	3,506 15 5	54,397 2 7	57,904 2 0	7,855 3 4	.....
Palamow	.....	5,946 1 3	5,946 1 3	160 5 5	7,124 12 1	7,285 1 6	1,339 0 3	.....
Sundurbans	.....	29,357 14 1	29,357 14 1	805 12 7	29,226 5 10	30,122 2 5	764 4 4	.....
Chittagong	.....	12,088 11 8	12,088 11 8	262 8 0	12,401 11 8	12,664 3 8	575 8 0	.....
Chittagong Hill Tracts ...	.....	3,425 15 0	3,425 15 0	.....	3,699 6 0	3,699 6 0	273 7 0	.....
Hazaribagh	.....	.....	.....	.....	.....	.....	.....	.....
Dacca (late)	.....	.....	.....	12 0 0	.....	12 0 0	12 0 0	.....
Total ...	268 7 3;	1,29,098 14 7;	1,29,367 5 10;	7,806 6 9;	1,35,284 10 9; (a)200 0 0	1,43,091 1 6; 200 0 0	13,992 2 11;	68 7 3; .....

(a) Security money paid to a contractor for work completed and charged direct to the budget expenditure head.

The 20th May 1880.

(Signed)
A. L. HOME,
Asst. Comptroller General, Forests.

ANNUAL FORM No. 52.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Outstandings on account of Revenue, 1879-80.

DIVISION	PARTICULARS.	Outstandings at commencement of year.	Value of sales and other revenue during year.	Total.	Amount realized during year.	Balance due to the Department at end of year.	REMARKS
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Direction	.....	.....	65 2 0	65 2 0	65 2 0	.....	
Darjeeling	Firewood and charcoal.	1,140 7 3 192 7 0	69,085 15 11 4,852 13 4	70,226 7 2 5,045 4 4	68,561 9 5 5,045 4 4	1,664 13 9	Firewood and charcoal.
Teesta	.....						
Kurseong	Logs and sleepers..	17,734 5 0	22,312 8 10	40,046 13 10	40,046 13 10	.....	
Julpigoree	.....	158 4 6	11,464 15 9	11,623 4 3	10,417 3 9	1,206 0 6	From District Road Cess.
Buxa	.....	.....	64,399 14 6	64,399 14 6	64,351 2 6	48 12 0	Auction sale outstandings.
Palamow	Lac, mowah ...	30 11 0	1,096 13 8	1,127 8 8	1,096 13 8 * 30 11 0	.....	
Hazaribagh	.....	.....	41 1 6	41 1 6	41 1 6	.....	
Sundurbans	.....	.....	1,99,448 3 3	1,99,448 3 3	1,99,448 3 3	.....	
Chittagong	.....	.....	2,204 1 3	2,204 1 3	2,204 1 3	.....	
Chittagong Hill Tracts	.....	.....	58,246 4 6	58,246 4 6	58,246 4 6	.....	
	Total ...	19,262 2 9	4,83,217 14 6	4,52,474 1 3	4,40,523 13 0 * 30 11 0	2,919 10 3	

* Written off under Bengal Government orders No. 1609—182 of 15th August 1879.

FORM No. 53.

FOREST DEPARTMENT, BENGAL.

Statement of Trees felled during the year 1879-80.

Division.	Forest Range.	Locality.	Description of tree.	On hand from previous year.	Felled during current year.	Total.	Disposed of during current year.		Closing balance
				No.	No.	No.	How disposed of.	No.	
Darjeeling ...	Rangbul	Dooteria block	Katús	.....	41	41	Converted into firewood ...	40	1
			Booke	.....	31	31		30	1
			Bhadrasi	.....	12	12		11	1
			Kabashi	.....	9	9		9	.....
			Kaula	.....	9	9		9	.....
			Dabdabia	.....	8	8		8	.....
			Phalat	.....	8	8		8	.....
			Lali	.....	4	4		4	.....
			Sisi	.....	4	4		3	1
			Paieli	.....	3	3		3	.....
			Kharani	.....	2	2		2	.....
	Tukdah	Senchul block	Katús	.....	27	27		17	10
			Booke	.....	15	15		12	3
			Kaula	.....	18	18		12	6
			Kabashi	.....	9	9		9	.....
			Dabdabia	.....	7	7		7	.....
			Bhadrasi	.....	4	4		4	.....
			Sisi	.....	5	5		.....	5
			Lali	.....	3	3		3	.....
			Kharani	.....	3	3		3	.....
			Paieli	.....	3	3		3	.....
			Chilauni	.....	2	2		1	1
			Gobria	.....	2	2		.....	2
			Kanukpa	.....	1	1		1	.....
			Phalat	.....	4	4		1	3
	Goompahar ...	Poobong block	Kaula	5	14	19		10	9
			Lali	5	11	16		7	9
			Bhadrasi	.....	9	9		3	6
			Paieli	.....	9	9		4	5
			Dabdabia	2	7	9		3	6
			Booke	4	3	7		5	2
			Kaula	.....	12	12		12	.....
			Bhadrasi	.....	5	5		5	.....
			Total number of trees felled for firewood ...	16	304	320		240	71
	Ditto	Ditto	Lali	.....	2	2	Converted into brick-burning wood	2	.....
			Kabashi	.....	1	1		1	.....
			Sisi	.....	1	1		1	.....
			Dabdabia	.....	1	1		1	.....
			Champ	.....	1	1		1	.....
			Gobria	.....	1	1		1	.....
			Dudila	.....	1	1		1	.....
			Total number of trees felled for brick-burning wood	.....	8	8		8	.....
	Rungbul	Dooteria block	Kaula	.....	69	69	Converted into charcoal ...	66	3
			Katús	.....	64	64		59	5
			Booke	.....	32	32		30	2
			Kabashi	.....	27	27		25	2
			Bhadrasi	.....	25	25		25	.....
			Lali	.....	24	24		24	.....
			Sisi	.....	22	22		22	.....
			Dabdabia	.....	17	17		17	.....
			Phalat	.....	12	12		12	.....
			Paieli	.....	12	12		12	.....
			Mya	.....	10	10		10	.....
			Kharani	.....	8	8		8	.....
			Thali	.....	7	7		7	.....
			Dudila	.....	5	5		5	.....
	Goompahar ...	Poobong block	Booke	.....	11	11		.....	11
			Kaula	.....	4	4		.....	4
			Katús	.....	2	2		.....	2
			Phalat	.....	1	1		.....	1
			Paieli	.....	1	1		.....	1
	Tukdah	Peomong block	Kaula	.....	19	19		19	.....
			Lepchaphal	.....	13	13		13	.....
			Paieli	.....	11	11		11	.....
			Chinde	.....	8	8		8	.....
			Thali	.....	6	6		6	.....
			Dabdabia	.....	5	5		5	.....
			Lali	.....	3	3		3	.....
			Bhadrasi	.....	3	3		3	.....
			Kharani	.....	3	3		3	.....
			Amphi	.....	3	3		3	.....
			Booko	.....	2	2		2	.....
			Datun	.....	2	2		2	.....
			Chalauni	.....	2	2		2	.....
			Sisi	.....	1	1		1	.....
			Dudila	.....	1	1		1	.....
			Gosla	.....	1	1		1	.....
			Tarsing	.....	1	1		1	.....
			Patié	.....	1	1		1	.....
			Gobria	.....	1	1		1	.....
			Akré	.....	1	1		1	.....
			Burgonll	.....	1	1		1	.....
			Arupati	.....	1	1		1	.....
			Total number of trees felled for charcoal ...	.....	442	442		411	31
	Goompahar ...	Rishihât block	Champ	.....	1	1	Cut into scantling ...	1	.....
			Total number of trees felled for scantlings	.....	1	1		1	.....

FORM No. 53—*continued.*

Division.	Forest Range.	Locality.	Description of trees.	On hand from previous year.	Felled during current year.	Total.	Disposed of during current year.		Closing balance.
				No.	No.	No.	How disposed of.	No.	
Kurseong	Kurseong ...	Dhobijhora block... ...	Kaula and other kinds	.....	47	47	Converted into charcoal	47	.....
			Total number of trees felled for charcoal ...	.....	47	47		47	.....
	Ditto	Ditto do.	Katús	.....	38	38	Cut on the site of the Kurseong divisional bungalow and used partly for building, partly for making bricks, &c. ...	38	.....
			Champ	.....	4	4		4	.....
			Hooke	.....	11	11		11	.....
			Kurkumbi	.....	1	1		1	.....
			Tarsing	.....	2	2		2	.....
			Other kinds	.....	278	278		278	.....
			Kaula	.....	27	27		27	.....
	Bamunpokr ...	Lamagumba block ...	Sál	.....	15	15	Cut into logs	15	.....
		Bamunpokri block ...	Sál	.....	2	2	Cut into scantlings	2	.....
			Chilauni	.....	3	3		3	.....
			Lampatia	.....	4	4		4	.....
			Champ	.....	1	1		1	.....
		Kooklong block	Saj	.....	5	5	Used for elephant shed	5	.....
		Rangdung block	Sál	.....	232	232	Cut into 23d logs ...	232	.....
			Katus	.....	2	2	Ditto specimens ...	2	.....
			Saj	.....	73	73	Ditto logs ...	73	.....
			Do.	.....	.....	.....	Used for elephant shed	2	.....
			Gambari	.....	4	4	Cut into logs ...	4	.....
			Sida	.....	2	2		2	.....
			Lampatia	.....	6	6		6	.....
			Chilauni	.....	6	6		6	.....
			Dabdabia	.....	1	1	Used for elephant shed	1	.....
			Champ	.....	1	1		1	.....
		Sukna block	Dabdabia	.....	2	2	Ditto ...	2	.....
		Poondig block	Saj	.....	50	50	Cut into sleepers ...	50	.....
	Sukna	Mahanadi block	Lampatia	.....	16	16	Ditto logs ...	16	.....
			Gambari	.....	9	9		9	.....
			Dabdabia	.....	1	1		1	.....
		Gulma block	Lampatia	.....	40	40	Ditto do. ...	40	.....
			Kimbu	.....	1	1		1	.....
			Champ	.....	20	20		20	.....
		Goroomara block... ...	Toon	.....	20	20	Ditto do. ...	20	.....
			Gambari	.....	7	7		7	.....
		Latpanchor block ...	Arkoulo	.....	1	1	Cut into specimens ...	1	.....
		Sivoke block	Gambari	.....	3	3	Ditto logs	3	.....
			Chilauni	.....	8	8		8	.....
			Lampatia	.....	3	3		3	.....
			Sida	.....	6	6		6	.....
			Saj	.....	72	72		72	.....
			Total number of trees felled for timber works	.....	977	977		977	.....
Julpigoree	Apalchand ...	Malhati	Sál	.....	86	86	Converted into logs	86	.....
	Muraghat ...	Dainah	Sissu	.....	150	150		150	.....
		Goshai Hát...	Sál	158	166	324		324	.....
			Total number of trees felled for timber works	158	402	560		560	.....
Buxa	Buxa range ...	Block III, Compartment 1	Khair	.....	52	52	Cut into sleepers ...	52	.....
		Ditto ditto 4	Sál (dry)	.....	66	66	Ditto posts ...	66	.....
			Sissu (dry)	.....	1	1	Ditto do. ...	1	.....
			Khair	.....	25	25	Ditto do. ...	25	.....
		Ditto ditto 5	Lutter	.....	3	3	Cut into sleepers ...	3	.....
			Katús	.....	5	5	Ditto ditto ...	5	.....
			Sál (dry)	.....	35	35	Cut into posts ...	35	.....
		Ditto ditto 6	Khair (dry)	.....	66	66	Ditto ditto ...	66	.....
			Sissu (do.)	.....	2	2	Ditto ditto ...	2	.....
		Ditto ditto 7	Akshi	.....	4	4	Cut into sleepers ...	4	.....
			Khair	.....	3	3	Ditto ditto ...	3	.....
		Ditto ditto 8	Sál (dry)	.....	1	1	Ditto ditto ...	1	.....
			Chilauni	.....	7	7	Ditto ditto ...	7	.....
			Sida	.....	7	7	Ditto ditto ...	7	.....
			Akshi	.....	10	10	Ditto ditto ...	10	.....
			Parari	.....	9	9	Ditto ditto ...	9	.....
		Ditto ditto 9	Akshi	.....	7	7	Ditto ditto ...	7	.....
			Khair	.....	5	5	Ditto ditto ...	5	.....
		Ditto ditto 10	Chilauni	.....	2	2	Ditto ditto ...	2	.....
			Akshi	.....	2	2	Ditto ditto ...	2	.....
			Sida	.....	6	6	Ditto ditto ...	6	.....
			Parari	.....	6	6	Ditto ditto ...	6	.....
		Ditto ditto 12	Sál (dry)	.....	349	349	Cut into posts ...	349	.....
			Sida	.....	4	4	Ditto do. ...	4	.....
			Khair	.....	1	1	Ditto do. ...	1	.....
		Ditto ditto 13	Jamun	.....	21	21	Cut into sleepers ...	21	.....
			Lutter	.....	1	1	Ditto ditto ..	1	.....
			Katús	.....	1	1	Ditto ditto ...	1	.....
			Siris	.....	7	7	Ditto ditto ...	7	.....
		Ditto ditto 14	Sál	.....	40	40	Ditto logs ...	40	.....
			Do. (dry)	.....	14	14	Ditto posts ...	14	.....
			Parari	.....	4	4	Ditto sleepers ...	4	.....
		Ditto ditto 15	Siris	.....	12	12	Ditto ditto ...	12	.....
			Jamun	.....	1	1	Ditto ditto ...	1	.....
			Lutter	.....	1	1	Ditto ditto ...	1	.....
		Ditto ditto 16	Lutter	.....	1	1	Ditto ditto ...	1	.....
			Katús	.....	1	1	Ditto ditto ...	1	.....
			Jamun	.....	3	3	Ditto ditto ...	3	.....
		Ditto ditto 18	Jamun	.....	2	2	Ditto ditto ...	2	.....
			Katús	.....	3	3	Ditto ditto ...	3	.....
		Ditto ditto 21	Katús	.....	5	5	Ditto ditto ...	5	.....
		Ditto ditto 22	Sál (dry)	.....	69	69	Cut into posts ...	69	.....
			Katús	.....	5	5	Ditto sleepers ...	5	.....
		Ditto ditto 23	Katús	.....	3	3	Ditto ditto ...	3	.....
		Ditto ditto 24	Katus	.....	1	1	Ditto ditto ...	1	.....
			Lutter	.....	4	4	Ditto ditto ...	4	.....
		Buxa Hills	Lampatia	.....	11	11	Converted into sleepers	11	.....
			Khair	.....	13	13		13	.....
			Total number of trees felled for timber works	.....	901	901		901	.....

FORM No. 54.

FOREST DEPARTMENT, BENGAL.

Statement of Logs, Sleepers, and other Scantlings cut and exported during the year 1879-80.

Division.	Forest Range.	Locality.	Description of timber and scantlings.	On hand from previous year.		Cut during current year.		Total.		Disposed of during current year.			Closing balance.		Remarks.
				No.	C. ft.	No.	C. ft.	No.	C. ft.	How disposed of.	No.	C. ft.	No.	C. ft.	
Darjeeling	Goompahar	Rishihât	Scantlings	.....	.....	14	17	14	17	Taken to depôt	14	17	.....	.....	
			Total ...	.....	.....	14	17	14	17	Total ...	14	17	.....	.....	
	Rangbul	Rangbul block	Firewood	.....	.....	3,270	Mds.	3,720	Mds.	Taken to depôt	3,270	Mds.	.....	.....	
			Charcoal	.....	.....	229	,,	229	,,	Ditto	229	,,	.....	.....	
		Dooteria do.	Firewood	.....	.....	90,797	,,	90,797	,,	Ditto	90,797	,,	.....	.....	
			Brickwood	.....	.....	8,543½	,,	8,543½	,,	Ditto	8,543½	,,	.....	.....	
			Charcoal	.....	.....	11,227	,,	11,227	,,	Ditto	11,227	,,	.....	.....	
		Sonada do.	Firewood	.....	.....	81	,,	81	,,	Ditto	81	,,	.....	.....	
			Charcoal	.....	.....	250	,,	250	,,	Ditto	250	,,	.....	.....	
		Chuttockpore do.	Firewood	.....	.....	80	,,	80	,,	Ditto	80	,,	.....	.....	
		Sepoydura do.	Ditto	.....	.....	162	,,	162	,,	Ditto	162	,,	.....	.....	
	Goompahar	Poobong do.	Ditto	.....	.....	6,703	,,	6,703	,,	Ditto	6,703	,,	.....	.....	
		Ditto do.	Brickwood	.....	.....	2,920½	,,	2,920½	,,	Ditto	2,920½	,,	.....	.....	
	Tukdah	Rangirûm do.	Firewood	.....	.....	26,577	,,	26,577	,,	Ditto	26,577	,,	.....	.....	
		Poomong do.	Charcoal	.....	.....	1,116	,,	1,116	,,	Ditto	1,116	,,	.....	.....	
			Total ...	.....	.....	1,51,956	.....	1,51,956	.....	Total ...	1,51,956	.....	.....	.....	
Teesta ...	Chel	Leesh block	Sâl logs	129	5,171	.....	.....	129	5,171	Taken to Phulbari depôt ...	60	1,527	69	3,644	
		Do. do.	Do. b. g. sleepers	.....	.....	25	83	25	83	Ditto ditto ...	7	23	18	60	
			Total ...	129	5,171	25	83	154	5,254	Total ...	67	1,550	87	3,704	
Kurseong	Balasun	Manjha block	Sâl scantlings	.....	.....	525	28	525	28	Used for boundary pickets ...	525	28	.....	.....	
	Bamunpokri	Lama Gumba do.	Do. logs	.....	.....	15	320	15	330	Taken to Rakti depôt ...	15	320*	.....	.....	* 65 c. ft. loss in re-measurement.
			Do. bridge sleepers, 6', 8", 6".	172	344	.....	.....	172	344	Ditto Patalpore do. ...	7	14	148	296	
										Lost in flood	17	34			
		Bamunpokri do.	Sâl scantlings ...	.....	.....	8	32	8	32	Used for forester's house and repairs to bungalow.	8	32	.....	.....	
			Chilauni do. ...	.....	.....	80	107	80	107		80	107	.....	.....	
			Lampatia do. ...	.....	.....	235	235	235	235		235	235	.....	.....	
			Champ do. ...	.....	.....	31	31	31	31		31	31	.....	.....	
		Kooklong do.	Sâl logs	88	2,163	.....	.....	88	2,163	Taken to Rakti depôt ...	22	525	66	1,638	
			Do. n. g. sleepers	.....	.....	93	124	93	124	Ditto Patalpore do. ...	93	124	.....	.....	
		Rungdung do.	Do. logs	219	5,204	236	5,707	455	10,911	Ditto Sukna do. ...	391	9,214	64	1,697	
			Do. do.	.....	.....	101	3,627	101	3,627	Ditto ditto do. ...	29	1,048	72	2,579	
			Sida do.	.....	.....	4	119	4	119	....	.....	.....	4	119	
			Lampatia do.	.....	.....	8	271	8	271	Taken to Sukna depôt ...	4	108	4	163	
			Gambari do.	.....	.....	6	161	6	161	Ditto ditto do. ...	2	64	4	97	
			Chilauni do.	.....	.....	10	325	10	325	....	.....	.....	10	325	
		Sukna do.	Sâl logs	72	2,180	.....	.....	72	2,180	Written off, as they are said to have been disposed of in former years.	72	2,190	.....	.....	
		Mahanadi do.	Lampatia logs	.....	.....	25	775	25	775	....	.....	.....	25	775	
			Gambari do.	.....	.....	10	212	10	212	....	.....	.....	10	212	
			Dabdabi do.	.....	.....	2	65	2	65	....	.....	.....	2	65	
	Sukna	Mana do.	Sâl logs	59	2,215	.....	.....	59	2,215	....	.....	.....	59	2,215	
		Poondig do.	Saj sleepers, 4½', 8", 4"	.....	.....	5,087	5,087	5,087	5,087	Taken to Sukna depôt ...	5,087	5,087	.....	.....	
		Jogijhora do.	Sâl logs	85	2,866	.....	.....	85	2,866	....	.....	.....	85	2,866	
			Do. n. g. sleepers	2,287	3,050	.....	.....	2,287	3,050	Taken to Patalpore depôt ...	2,279	3,039	.....	.....	
										Burnt	8	11			
		Choklong do.	Sâl n. g. sleepers	130	173	.....	.....	130	173	Written off	130	173	.....	.....	

			Gulma do.	Lampatia logs	.....	.....	60	2,169	60	2,169	.....	.....	.....	.....	60	2,169
				Kimbu do.	.....	.....	3	114	3	114	.....	.....	.....	.....	3	114
				Champ do.	.....	.....	32	1,160	32	1,160	.....	.....	.....	.....	32	1,160
			Goroomara do.	Sál logs	86	1,801	.....	.....	86	1,801	Taken to Sivoke depôt ...	29	493	57	1,308
				Do. do. (dry)	.....	.....	6	92	6	92	.....	.....	.....	.....	6	92
				Toon do.	.....	.....	29	1,073	29	1,073	.....	.....	.....	.....	29	1,073
				Gambari do.	.....	.....	7	319	7	319	.....	.....	.....	.....	7	319
			Sivoke do.	Saj logs	.....	.....	104	5,074	104	5,074	.....	.....	.....	.....	104	5,074
				Gambari do.	.....	.....	3	91	3	91	.....	.....	.....	.....	3	91
				Chilauni do.	.....	.....	10	371	10	371	.....	.....	.....	.....	10	371
				Lampatia do.	.....	.....	6	248	6	248	.....	.....	.....	.....	6	248
				Sida do.	.....	.....	9	363	9	363	.....	.....	.....	.....	9	363
				Sál do.	28	502	.....	.....	28	502	Taken to Sivoke depôt ...	24	354	.....	.....
											Lost in transit ...	4	148		
				Total ...	3,226	28,498	6,745	23,300	9,971	48,798	Total ...	9,092	23,369	879	25,429
Julpigoree	Apalchand ...	Chengmari block	Sál logs	50	.....	.....	.....	50	.....	Not found ...	22	.....	30	.....
		Malhati	Do. jhanjies	.....	.....	95	.....	95	.....	Taken to Julpigoree ...	95	.....	.....	.....
	Tondu ...	Tondu	Do. logs	7	.....	.....	.....	7	.....	Ditto do. ...	7	.....	.....	.....
			Do. n. g. sleepers	12	16	.....	.....	12	16	Taken to depôt in 1878-79, but not shown in annual report.	12	16	.....	.....
			Do. b. g. do.	43	143	.....	.....	43	143		43	143	.....	.....
			Do. slabs	184	.....	.....	.....	184	.....		184	.....	.....	.....
			Do. ends	84	.....	.....	.....	84	.....		84	.....	.....	.....
	Muraghat ...	Dainah	Sissu logs	.....	.....	150	6,533	150	6,533	Sold in forest ...	30	350	120	5,583
		Goshai Hát	Sál do.	158	.....	200	.....	358	.....	Taken to Dudua depôt	284	.....	74	.....
	Julpigoree ...	Teesta river	Do. do.	.....	.....	7	255	7	255	Ditto Julpigoree ...	7	255	.....	.....
			Do. jhanjies	.....	.....	2	.....	2	.....	Ditto do. ...	2	.....	.....	.....
			Toon logs	.....	.....	1	.....	1	.....	Ditto do. ...	1	.....	.....	.....
			Total ...	538	159	455	6,788	993	6,947	Total ...	769	1,364	224	5,583
Buxa ...	Buxa Block III ...	Hill Forests ...	Lampatia b. g. sleepers	.....	.....	98	340	98	340	Taken to Alipore depôt	85	340	.....	.....
										Ditto Rajabhatkhawa	8			
										Used for bridge	5			
			Khair	.....	.....	15	52	15	52	Taken to Alipore depôt	9	31	6	21
			Sida	2	7	.....	.....	2	7	Become rotten	2	7	.....	.....
		Compartment No. 1	Khair	.....	.....	67	233	67	233	Taken to Alipore	17	219	4	14
										Ditto Rajabhatkhawa	21			
										Used for bridge	25			
		Ditto „ 3	Sál posts	3	.....	.....	.....	3	.....	Taken to Rajabhatkhawa	3	.....	.....	.....
			Sissu logs	55	.....	.....	.....	55	.....	Ditto Buxa forest depôt	2	.....	53	.....
			Sál do.	4	.....	.....	.....	4	.....	Ditto do. do.	4	.....	.....	.....
			Sissu do.	26	.....	.....	.....	26	.....	Ditto do. do.	1	.....	25	.....
		Ditto „ 4	Sál posts	.....	.....	66	.....	66	.....	Ditto Alipore do.	66	.....	.....	.....
			Sissu do.	.....	.....	1	.....	1	.....	Ditto do. do.	1	.....	.....	.....
			Khair do.	.....	.....	59	.....	59	.....	Ditto do. do.	59	.....	.....	.....
			Sál logs	5	.....	.....	.....	5	.....	Ditto Buxa Forest dp.	5	.....	.....	.....
			Sissu do.	116	.....	.....	.....	116	.....	Ditto do. do.	1	.....	115	.....
		Ditto „ 5	Katús b. g. sleepers	.....	.....	30	104	30	104	Ditto Alipore do.	19	97	2	7
										Ditto Rajabhatkhawa	9			
			Lutter do. do.	.....	.....	40	139	40	139	Ditto do.	22	132	2	7
										Ditto Alipore depôt	16			
		Ditto „ 6	Sál posts	.....	.....	35	.....	35	.....	Ditto do. do.	35	.....	.....	.....
			Khair do.	.....	.....	32	.....	32	.....	Ditto do. do.	32	.....	.....	.....
			Sissu do.	.....	.....	2	.....	2	.....	Ditto do. do.	2	.....	.....	.....
		Ditto „ 7	Sál logs	339	.....	.....	.....	339	.....	Ditto Buxa forest depôt	247	.....	92	.....
			Sissu do.	380	.....	.....	.....	380	.....	Ditto do. do.	210	.....	170	.....
			Akshi b. g. sleepers	.....	.....	40	139	40	139	Ditto Alipore depôt	31	139	.....	.....
										Ditto Rajabhatkhawa	5			
										Used for road	4			
			Khair do. do.	.....	.....	7	24	7	24	Sent to Alipore depôt	1	3	6	21
		Ditto „ 8	Sál logs	1,204	.....	.....	.....	1,204	.....	Ditto Buxa forest do.	165	.....	1,039	.....
			Sissu do.	7	.....	.....	.....	7	.....		.....	.....	7	.....
			Sál n. g. sleepers	.....	.....	36	48	36	48	Sent to Alipore depôt ...	36	48	.....	.....
			Chilauni b. g. sleepers	.....	.....	76	264	76	264	Ditto do. do.	64	264	.....	.....
										Ditto Rajabhatkhawa	12			
			Akshi do. do.	.....	.....	36	125	36	125	Ditto Alipore depôt	36	125	.....	.....
			Sida do. do.	.....	.....	51	177	51	177	Ditto do. do.	51	177	.....	.....
			Parari do. do.	.....	.....	62	215	62	215	Ditto do. do.	41	142	21	73
		Ditto „ 9	Sál logs	22	.....	.....	.....	22	.....		.....	.....	22	.....
			Sissu do.	358	.....	.....	.....	358	.....	Sent to Buxa forest depôt	10	.....	348	.....
			Akshi b. g. sleepers	.....	.....	16	55	16	55	Ditto Alipore do. do.	16	55	.....	.....
			Khair do. do.	.....	.....	11	40	11	40		.....	.....	11	40

FORM No. 54—*continued.*

Division.	Forest Range.	Locality.	Description of timber and scantlings.	On hand from previous year. No.	On hand from previous year. C. ft.	Cut during current year. No.	Cut during current year. C. ft.	Total. No.	Total. C. ft.	Disposed of during current year. How disposed of.	Disposed of during current year. No.	Disposed of during current year. C. ft.	Closing balance. No.	Closing balance. C. ft.	Remarks.
Buxa—*contd.*	Buxa Block III	Compartment No. 10	Sál logs	662	.....	.....	.....	662	.....	Sent to Buxa forest depôt ...	46	.....	616	.....	
			Sissu do.	340	.....	.....	.....	340	.....	....	.....	.....	340	.....	
			Chilauni b. g. sleepers ...	.....	.....	24	83	24	83	Sent to Alipore depôt ...	34	83	.....	.....	
			Akshi do. do. ...	.....	.....	8	28	8	28	Ditto do. do. ...	8	28	.....	.....	
			Sida do. do. ...	.....	.....	49	170	49	170	Ditto do. do. ... / Ditto Rajabhatkhawa ... / Used for bridge	19 / 21 / 8	167	1	3	
			Parari do. do. ...	.....	.....	23	70	23	70	Sent to Alipore depôt	18	53	5	17	
		Ditto „ 12	Sál logs	719	.....	.....	.....	719	.....	Cut into sleepers ... ... / Taken to Buxa forest depôt	15 / 467	.....	237	.....	
			Do. n. g. sleepers	623	829	190	253	813	1,082	Sent to Alipore do. ...	729	970	84	112	
			Do. slabs	1,376	.....	210	.....	1,586	.....	Ditto Rajabhatkhawa ...	686	.....	900	.....	
			Do. posts	.....	.....	290	.....	290	.....	Ditto Alipore depôt	290	.....	.....	.....	
			Sida do.	.....	.....	4	.....	4	.....	Ditto do. do.	4	.....	.....	.....	
			Khair do.	.....	.....	1	.....	1	.....	Ditto do. do.	1	.....	.....	.....	
		Ditto „ 13	Sál logs	203	.....	.....	.....	203	.....	Ditto Buxa forest depôt ...	4	.....	199	.....	
			Do. n. g. sleepers	5	7	463	617	468	624	Ditto Alipore do. ... / Ditto Rajabhatkhawa ...	460 / 8	624	.....	.....	
			Do. slabs	290	.....	234	.....	494	.....	Ditto do. ...	324	.....	170	.....	
			Jamun b. g. sleepers ...	.....	.....	74	257	74	257	Ditto do. ... / Ditto Alipore depôt	1 / 73	257	.....	.....	
			Lutter	.....	.....	2	7	2	7	Ditto do. do.	2	7	.....	.....	
			Katús	.....	.....	4	14	4	14	Ditto do. do.	4	14	.....	.....	
			Siris	.....	.....	33	114	33	114	Ditto do. do.	30	104	3	10	
		Ditto „ 14	Sál logs	1,076	.....	44	.....	1,120	.....	Cut into sleepers ... ... / Taken to Buxa forest depôt	7 / 498	.....	615	.....	
			Do. n. g. sleepers	281	307	308	411	589	718	Ditto Alipore do.	496	647	93	71	
			Do. slabs	334	.....	82	.....	416	.....	Ditto Rajabhatkhawa do.	266	.....	200	.....	
			Do. posts	.....	.....	14	.....	14	.....	Ditto Alipore depôt ...	14	.....	.....	.....	
		Ditto „ 15	Do. logs	58	.....	.....	.....	58	.....	....	.....	.....	58	.....	
			Parari b. g. sleepers ...	.....	.....	15	52	15	52	Sent to Alipore depôt	14	49	1	3	
			Siris do. do.	.....	.....	67	232	67	232	Ditto do. do. ... ... / Ditto Rajabhatkhawa ... / Used for bridges	13 / 34 / 15	215	5	17	
			Jamun do. do.	.....	.....	3	10	3	10	Sent to Alipore	3	10	.....	.....	
			Lutter do. do.	.....	.....	13	45	13	45	Ditto do. ... ... / Ditto Rajabhatkhawa ... / Used for bridge	5 / 5 / 2	42	1	3	
		Ditto „ 16	Sál logs	102	.....	.....	.....	102	.....	....	.....	.....	102	.....	
			Lutter b. g. sleepers ...	.....	.....	5	17	5	17	Sent to Alipore depôt	5	17	.....	.....	
			Katús do. do. ...	.....	.....	2	7	2	7	Used for bridge	1	4	1	3	
			Jamun do. do. ...	.....	.....	9	31	9	31	Sent to Alipore depôt	8	28	1	3	
		Ditto „ 18	Katús do. do. ...	.....	.....	9	31	9	31	Ditto do. do.	4	14	5	17	
			Jamun do. do. ...	.....	.....	14	48	14	48	Ditto do. do.	14	48	.....	.....	
		Ditto „ 21	Katús do. do. ...	.....	.....	21	72	21	72	Ditto do. do.	7	24	14	48	
		Ditto „ 22	Sál posts	.....	.....	128	.....	128	.....	Ditto do. do.	128	.....	.....	.....	
			Katús b. g. sleepees ...	.....	.....	16	55	16	55	Ditto do. do.	9	31	7	24	
		Ditto „ 23	Ditto do. do. ...	.....	.....	11	38	11	38	Ditto do. do.	11	38	.....	.....	
		Ditto „ 24	Ditto do. do. ...	.....	.....	3	10	3	10	Ditto do. do.	3	10	.....	.....	
			Lutter do. do. ...	.....	.....	40	139	40	139	Ditto do. do.	24	84	16	55	
		22nd mile road	Sál logs	5	.....	.....	.....	5	.....	....	.....	.....	5	.....	
		23rd do.	Do. do.	16	.....	.....	.....	16	.....	....	.....	.....	16	.....	
		24th do.	Do. do.	14	.....	.....	.....	14	.....	....	.....	.....	14	.....	
			Do. do. (old)	.....	.....	3	90	3	90	Cut into sleepers	3	90	.....	.....	
			Do. do. (1874-75)	50	2,219	.....	.....	50	2,219	Ditto do. ... ... / Sent to Alipore depôt ...	47 / 3	2,068 / 151	.....	.....	
			Do. do. (1875-76)	15	545	4	119	19	664	Ditto do. do. ... / Cut into sleepers	4 / 15	161 / 503	.....	.....	
			Do. do. (1876-77)	1,143	35,958	452	12,591	1,595	48,549	Ditto do. ... ... / Ditto planks ... ... / Taken to Alipore depôt ... / Ditto Minagaon do. ... / Ditto Rajabhatkhawa ...	871 / 1 / 432 / 36 / 3	23,441 / 56 / 16,241 / 678 / 86	252	8,047	
			Do. do. (1877-78)	3	150	11	407	14	557	Ditto Alipore depôt ...	14	557	.....	.....	

Do. do. (1878-79)	295	11,397	969	36,813	1,264	48,269	Ditto do. do. ...	561	20,627	281	14,464
							Ditto Minagaon do. ...	188	6,424		
							Cut into sleepers	234	6,604		
Sissu	51	832	224	4,465	275	5,297	Ditto do.	66	1,368	156	2,494
							Taken to Alipore depôt ...	59	1,435		
Sál posts	.....	.....	6	.....	6	.....	Ditto do. do. ...	6	.....	.....	.....
Do. n. g. sleepers	1,137	1,416	14,550	19,400	15,687	20,916	Ditto do. do. ...	13,358	18,685	1,673	2,231
							Ditto Rajabhatkhawa ...	140			
							Sold	16			
Do. pieces	718	.....	505	.....	1,223	.....	Used for carts	70	.....	1,115	.....
							Cut into scantlings	29			
							Sold	9			
Do. slabs	5,124	.....	4,668	.....	9,792	.....	do.	1,800	.....	6,277	.....
							Cut into scantlings	44			
							Taken to Rajbhatkhawa ...	1,671			
Do. scantlings	.....	.....	14	34	14	34	Ditto Alipore depôt ...	14	34	.....	.....
Do. planks	.....	.....	45	27	45	27	Ditto do. do. ...	45	27	.....	.....
Sissu b. g. sleepers... ...	.....	.....	111	385	111	385	Ditto do. do. ...	31	173	61	212
							Ditto Rajabhatkhawa...	19			
Do. slabs	.....	.....	98	.....	98	.....	Sold	17	.....	81	.....
Total ...	17,131	53,767	24,853	79,096	41,984	132,863		26,496	104,846	15,488	28,017

ANNUAL FORM No. 55.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Statement of Timber and other produce brought to Depôt from the different Forest Divisions, 1879-80.

Depôt.	Forest.	Description of Timber, &c.	No. of Pieces.	No. of C. ft.	Total of each Division. Pieces.	Total of each Division. C. ft.	Remarks.
		I.—TIMBER.					
		DARJEELING DIVISION.					
GOOMPAHAR ...	Rishihât	Scantlings	14	17			
RANGBUL ...	Rangbul	Ditto	727	6074			
					741	6241	
		TEESTA DIVISION.					
PHULBARI ...	Leesh	Sâl logs	60	1,527			
	Do.	Do. b. g. sleepers	7	23			
JULPIGOREE ...	Phulbari depôt ...	Sâl logs	40	1,045	107	2,595	
		KURSEONG DIVISION.					
RAKTI ...	Dulkâjhar	Sâl logs	12	197			
	Lama Gumba	Do. do.	15	324			
	Kooklong	Do. do.	22	525			
	Found in depôt ...	Do. ends	32	.....			
SUKNA ...	Rungdung	Do. logs	391	9,214			
	Ditto	Do. b. g. sleepers	9	30			
	Ditto	Do. jhanjies	2	.....			
	Ditto	Saj logs	29	1,048			
	Ditto	Lampatia do.	4	108			
	Ditto	Gambari do.	2	64			
	Poondig	Saj tramway sleepers ...	5,087	5,087			
PATALPORE ...	Lama Gumba	Sâl bridge ditto ...	7	14			
	Kooklong	Do. n. g. ditto ...	93	124			
	Jogi Jhora	Do. do. ditto ...	2,279	3,041			
	Sivoke depôt	Do. do. ditto ...	205	273			
	Found in depôt ...	Do. pieces	8	.....			
SIVOKE ...	Bersikh	Do. logs	24	354			
	Gorcounara	Do. do.	29	403			
JULPIGOREE ...	Sivoke depôt	Do. do.	101	2,124			
	Ditto	Do. jhanjies	183	.....			
					8,534	23,020	
		JULPIGOREE DIVISION.					
DUDOOA ...	Goshai Hât	Sâl logs	291	5,437			
	Malhati	Do. jhanjies	95	.....			
	Lataguri depôt ...	Do. logs	7	155			
	Teesta river	Do. do.	7	255			
	Ditto	Toon do.	1	10			
	Ditto	Sâl jhanjies	2	.....			
					403	3,857	
		BUXA DIVISION.					
MINAGAON ...	Buxa	Sâl logs	224	7,102			
RAJABHATKHAWA ...	Do.	Do. do.	3	86			
	Do.	Do. posts	7	.....			
	Do.	Do. jhanjies	9	.....			
	Do.	Do. n. g. sleepers	148	197			
	Do.	Do. slabs	2,947	.....			
	Cut in depôt	Do. pieces	9	.....			
	Buxa	Siris b. g. sleepers ...	34	114			
	Do.	Chilauni ditto ...	12	40			
	Do.	Sida ditto ...	21	70			
	Do.	Katús ditto ...	9	30			
	Do.	Akshi ditto ...	5	17			
	Do.	Jamun ditto ...	1	3			
	Do.	Khair ditto ...	21	70			
	Do.	Lampatia ditto ...	5	17			
	Do.	Lutter ditto ...	28	94			
	Do.	Sissu ditto ...	10	67			
ALIPORE ...	Do.	Sâl logs	1,014	37,768			
	Do.	Do. scantlings	59	61			
	Do.	Sissu logs	59	1,435			
	Do.	Do. posts	3	.....			
	Do.	Sida ditto	4	.....			
	Do.	Sâl ditto	539	.....			
	Do.	Khair ditto	92	.....			
	Do.	Sâl n. g. sleepers ...	15,569	20,759			
	Do.	Sissu b. g. ditto	31	104			
	Do.	Chilauni ditto	88	293			
	Do.	Akshi ditto	91	304			
	Do.	Lampatia ditto	85	284			
	Do.	Jamun ditto	98	327			
	Do.	Sida ditto	70	234			
	Do.	Lutter ditto	52	174			
	Do.	Khair ditto	27	90			
	Do.	Parari ditto	73	244			
	Do.	Siris ditto	43	144			
	Do.	Katús ditto	57	190			
	Transferred from Rajabhatkhawa.	Sâl posts	5	.....			
	Ditto	Do. jhanjees	2	.....			
	Ditto	Do. slabs	40	.....			
	Cut in depôt	Do. n. g. sleepers	437	583			
	Ditto	Do. pieces	293	.....			
	Ditto	Do. slabs	707	.....			
	Confiscated	Do. jhanjees	1	.....			

ANNUAL FORM No. 55.—[*Prescribed.*]—*continued.*

Depôt.	Forest.	Description of Timber, &c.	Number of		Total of each Division.		Remarks.
			Pieces.	C. ft.	Pieces.	C. ft.	
		Buxa Division—*continued.*					
Gachidanga ...	Transferred from Alipore depôt.	Do. logs	289	10,811			
	Ditto	Do. posts	94	.....			
	Ditto	Khair do	41	.....			
	Ditto	Sissu do.	2	.....			
Kawnia	Ditto	Sál n. g. sleepers	11,875	15,833	35,342	97,535	
		Sundurbans Division.					
Upper Bhola ...	Confiscated and drift	Sundri pieces	5	58			
Bhudder	Ditto	Ditto ditto	14	286			
Ditto	Ditto	Sál ditto	18	11			
Dumria	Ditto	Sundri ditto	25	215			
Cobaduk	Ditto	Ditto ditto	19	179			
Bussuntpore ...	Ditto	Pussur posts	1	3			
Khulna	Ditto	Teak pieces	8	66			
Tangana Khal ...	Ditto	Sál ditto	1	6	91	824	
		FIREWOOD AND CHARCOAL.					
		Darjeeling Division.	Mds.	s.	Mds.	s.	
Jellapahar ...	Rangbúl	Firewood	3,270	0			
	Pobong	Ditto	6,703	0			
	Rangirúm	Ditto	26,577	0			
	Dooteria	Ditto	11,775	0			
Darjeeling and Jor Bungalow	.....	Ditto	79,022	0			
Kurseong	Sepoydura	Ditto	161	30			
Pachnem ...	Chuttuckpore	Ditto	80	4			
	Sonada	Ditto	80	36	1,27,669	30	
Darjeeling ...	Dooteria	Brickwood	8,543	20			
	Poobong	Ditto	2,920	20	11,464	0	
Jellapahar Jor Bungalow and Darjeeling.	Dooteria	Charcoal	11,227	0			
Jor Bungalow	Rangbul	Ditto	220	0			
Poomong... ...	Poomong	Ditto	1,116	10			
Sonada	Sonada	Ditto	250	0	12,822	10	
		Julpigoree Division.					
Julpigoree ...	Drift	Firewood	145	0	145	0	

ANNUAL FORM No. 56.—[*Prescribed.*]

FOREST DEPARTMENT, BENGAL.

Account of Timber and other Produce, 1879-80.

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
By balance at commencement of year.					
Darjeeling Division	Scantlings	191	262½	191	262½
Teesta Division	Sál logs	8	134	107	266
	" n. g. sleepers	99	132		
Kurseong Division	Sál logs	105	2,994	1,930	5,000
	" jhanjies	502	.....		
	" b. g. sleepers	15	53		
	" n. g. "	1,164	1,552		
	" bridge	65	130		
	Gambari logs	2	126		
	Miscellaneous scantlings	77	155		
Julpigoree Division	Sál logs	202	2,090	959	2,773
	" n. g. sleepers	130	174		
	" b. g. "	153	509		
	" slabs	304	.....		
	" ends	84	.....		
	" scantlings	44	.....		
	" jhanjies	34	.....		
	Toon planks	8	.....		
Buxa Division	Sál logs	1,258	32,087	14,945	52,702*
	" posts	312	.....		
	" b. g. sleepers	9	28		
	" n. g. "	9,448	12,615		
	" pieces	432	.....		
	" slabs	3,041	.....		
	" scantlings	37	11		
	" jhanjies	27	.....		
	Sissu logs	211	3,307		
	Knair "	9	119		
	Miscellaneous "	2	35		
	Ditto b. g. sleepers	146	500		
	Ditto pieces	13	.....		
	Total	.....	.....	18,132	61,003½
Received during the year.					
Darjeeling Division	Scantlings	741	624½	741	624½
Teesta Division	Sál logs	60	1,527	67	1,550
	" b. g. sleepers	7	23		
Kurseong Division	Sál logs	481	10,910	8,083	20,426
	" jhanjies	2	.....		
	" ends	32	.....		
	" b. g. sleepers	9	30		
	" n. g. "	2,372	3,165		
	" bridge	7	14		
	" pieces	8	.....		
	Saj logs	29	1,048		
	" tramway sleepers	5,067	5,067		
	Gambari logs	2	64		
	Lampatia	4	168		

Particulars.		Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Removed by Purchasers.					
Darjeeling Division	Scantlings	2	9½	2	9½
Teesta Division	Sál logs	34	894	34	894
Kurseong Division	Sál logs	283	6,634	2,150	8,716
	" jhanjies	184	.....		
	" b. g. sleepers	16	54		
	" n. g. "	959	1,378		
	" pieces	8	.....		
	Saj tramway sleepers	750	750		
Julpigoree Division	Sál logs	441	4,917	771	5,204
	" n. g. sleepers	8	11		
	" b. g. "	110	366		
	" jhanjies	115	.....		
	" slabs	96	.....		
	Toon logs	1	10		
Buxa Division	Sál logs	604	21,225	15,214	37,179
	" posts	103	.....		
	" n. g. sleepers	11,934	15,912		
	" pieces	673	.....		
	" slabs	1,870	.....		
	" scantlings	14	27		
	" jhanjies	2	.....		
	Sissu logs	1	15		
	Miscellaneous "	13	.....		
Sundurbans Division	Sundri pieces	63	738	65	747
	Pussur "	1	3		
	Sál "	1	6		
	Total	.....	.....	18,236	52,749½
Lost and used by the Department.					
Darjeeling Division	Scantlings	620	451	620	451
Teesta Division	Sál b. g. sleepers	3	10	3	10
Kurseong Division	Sál logs	28	686	78	735
	" jhanjies	49	.....		
	Gambari logs	1	49		
Julpigoree Division	Toon planks	8	.....	22	.....
	Sál jhanjies	14	.....		
Buxa Division	Sál posts	63	.....	887	1,383
	" n. g. sleepers	194	259		
	" pieces	3	.....		
	" slabs	464	.....		
	Sissu logs	24	660		
	Miscellaneous b. g. sleepers	139	463		
	Total	.....	.....	1,610	2,578

Julpigoree Division	Sál logs	208	5,692		
	„ jhanjies	97	.....		
	Toon logs	1	10	306	5,702
Buxa Division	Sál logs	1,241	44,956		
	„ posts	546	.....		
	„ n. g. sleepers	16,154	21,539		
	„ pieces	302	.....		
	„ slabs	3,654	.....		
	„ scantlings	59	61		
	„ jhanjies	10	.....		
	Sissu logs	59	1,435		
	Miscellaneous posts	99	.....		
	Ditto b. g. sleeper	870	2,900	22,994	70,391
Sunderbans Division	Sundri pieces	63	758		
	Pussur „	1	3		
	Teak „	8	66		
	Sál „	19	17	91	824
Total		.....	.....	32,322	100,017¼
Transferred from one depôt to another.					
Teesta Division	Sál logs	40	1,045	40	1,045
Kurseong Division	Sál logs	113	2,321		
	„ n. g. sleepers	205	273		
	„ jhanjies	183	.....	501	2,594
Julpigoree Division	Sál logs	7	155	7	155
Buxa Division	Sál logs	289	10,811		
	„ posts	99	.....		
	Miscellaneous posts	43	.....		
	Sál n. g. sleepers	11,875	15,833		
	„ slabs	40	.....		
	„ jhanjies	2	.....	12,348	26,644
Total		.....	.....	12,896	30,433
Grand Total		.....	.....	63,350	191,469

Cut up in Depôt.					
Buxa Division	Sál logs	101	1,353	101	1,353
Total		.....	.....	101	1,353
Transferred from one Depôt to another.					
Teesta Division	Sál logs	40	1,045	40	1,045
Kurseong Division	Sál logs	113	2,321		
	„ n. g. sleepers	205	273		
	„ jhanjies	183	.....	501	2,594
Julpigoree Division	Sál logs	7	155	7	155
Buxa Division	Sál logs	289	10,811		
	„ posts	99	.....		
	Miscellaneous posts	43	.....		
	Sál n. g. sleepers	11,875	15,833		
	„ slabs	40	.....		
	„ jhanjies	2	.....	12,348	26,644
Total		.....	.....	12,896	30,433
Balance at close of year.					
Darjeeling Division	Scantlings	310	425½	310	425½
Teesta Division	Sál logs	34	767		
	„ b. g. sleepers	4	13		
	„ n. g. „	99	132	137	912
Kurseong Division	Sál logs	275	6,574		
	„ ends	33	.....		
	„ jhanjies	321	.....		
	„ b. g. sleepers	8	29		
	„ n. g. „	2,577	3,439		
	„ bridge	72	144		
	Saj logs	29	1,048		
	„ tramway sleepers	4,337	4,337		
	Gambari logs	3	141		
	Lampatia „	4	108		
	Miscellaneous scantlings	77	155	7,735	15,975
Julpigoree Division	Sál logs	59	2,965		
	„ n. g. sleepers	122	163		
	„ b. g. „	43	143		
	„ slabs	208	.....		
	„ ends	64	.....		
	„ scantlings	44	.....		
	„ jhanjies	2	.....	542	3,272
Buxa Division	Sál logs	1,794	58,465		
	„ posts	692	.....		
	„ b. g. sleepers	9	28		
	„ n. g. „	13,474	17,983		
	„ pieces	58	.....		
	„ slabs	4,361	.....		
	„ scantlings	52	45		
	„ jhanjies	35	.....		
	Sissu logs	945	4,067		
	Khair „	9	119		
	Miscellaneous „	2	35		
	„ posts	99	.....		
	„ b. g. sleepers	877	2,937	21,737	83,679
Sunderbans Division	Teak pieces	8	66		
	Sál „	18	11	26	77
Total		.....	.....	30,607	164,340¼
Grand Total		.....	.....	63,350	191,469

* Note.—The cubic contents of the posts and prices have been omitted, as the figures for the year are not available.

Account of Timber and other Produce, 1879-80—contd.

Particulars.	Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
FIREWOOD AND CHARCOAL.				
Balance in hand at the commencement of the year.	Mds.		Mds.	
Darjeeling Division ... Firewood	5,943			
Darjeeling Division ... Charcoal	721½		6,664½	
Received during the year.				
Darjeeling ... ... Firewood	1,39,133½			
Darjeeling ... ... Charcoal	12,822½		1,51,956	
Julpigoree ... ... Firewood	145		145	
Total ...	.....		1,58,765½	
BAMBOOS.				
Balance in hand at the commencement of the year.				
Kurseong Division ... Bamboos	28		28	
Total ...	.....		28	

Particulars.	Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Received by Purchasers.	Mds.		Mds.	
Darjeeling Division ... Firewood	1,39,133½			
Darjeeling Division ... Charcoal	12,086½		1,51,220½	
Julpigoree Division ... Firewood	145		145	
Lost and used by the Department.				
Darjeeling Division ... Firewood	5,943			
Darjeeling Division ... Charcoal	181		6,124	
Balance in hand at close of year.				
Darjeeling Division ... Charcoal	1,276		1,276	
Total ...	.....		1,58,765½	
Used by the Department.				
Kurseong Division ... Bamboos	28		28	
Total ...	.....		28	

Annual Form No. 60.

FOREST DEPARTMENT, BENGAL.

Abstract showing the value of Live and Dead-stock for the year 1879-80.

Description of Timber and other Stock.	On hand at commencement of year.		On hand at the close of the year.		Difference.		Remarks
	Number.	Value.	Number.	Value.	In favor of the year.	Against the year.	
		Rs. A. P.		Rs. A. P.	Rs. A. P.	Rs. A. P.	
Darjeeling Division.							
Scantlings	191	196 14 0	310	319 8 0			
Firewood ... ... Mds.	5,493	1,485 12 0	.....	.....			
Charcoal ... ... "	721½	604 12 7	1,276	1,116 8 0			
Iron safes	2	250 1 4	1	215 12 0			
Dumpy level	1	168 0 0	1	168 0 0			
Total ...	.....	2,705 7 11	.....	1,819 12 0	.....	885 11 11	
Teesta Division.							
Sál logs	8	156 0 0	34	1,020 0 0			
" sleepers, n. g., rejected ...	99	68 0 0	99	68 0 0			
" " b. g.	.....	.....	4	4 0 0			
Iron safe	1	60 0 0	1	60 0 0			
Total ...	.....	284 0 0	.....	1,152 0 0	868 0 0	.....	
Kurseong Division.							
Sál logs	105	2,238 0 0	275	6,574 0 0			
" jhanjies	502	1,255 0 0	521	577 8 0			
" b. g. sleepers...	15	33 12 0	8	8 0 0			
" n. g. "	1,164	2,328 0 0	2,577	5,154 0 0			
" bridge "	65	48 12 0	72	76 12 0			
" ends	.....	.....	32	2 0 0			
Saj logs	.....	.....	26	786 0 0			
" tramway sleepers	.....	.....	4,337	3,701 2 0			
Gambari logs	2	31 8 0	3	70 0 0			
Lampatia	.....	.....	4	81 0 0			
Miscellaneous—							
Scantlings	77	8 10 0	77	8 10 0			
Elephants	4	7,000 0 0	3	5,800 0 0			
Bullocks	2	60 0 0	.....	.....			
Bamboos	28	1 0 0	.....	.....			
Total ...	.....	13,004 10 0	.....	22,839 0 0	9,834 6 0	.....	
Julpigoree Division.							
Sál logs	202	3,369 15 4	59	741 0 0			
" n. g. sleepers	130	260 0 0	122	183 0 0			
" b. g. "	153	115 8 0	43	43 0 0			
" slabs	304	60 11 0	208	26 0 0			
" ends	84	31 8 0	84	31 8 0			
" scantlings	44	.....	44	.....			
" jhanjies	34	68 0 0	2	4 0 0			
Toon planks	8	10 0 0	.....	.....			
Elephants	2	3,500 0 0	2	3,500 0 0			
Total ...	.....	7,415 10 4	.....	4,528 8 0	.....	2,887 2 4	
Buxa Division.							
Sál logs	1,258	47,360 0 0	1,794	87,697 0 0			
" posts	312	396 14 0	692	692 0 0			
" b. g. sleepers	9	9 0 0	9	9 0 0			
" n. g. "	9,448	15,591 0 0	13,474	23,704 8 0			
" pieces	432	110 3 9	58	14 8 0			
" slabs	3,041	737 12 3	4,361	1,090 4 0			
" scantlings	37	13 10 5	82	58 10 5			
" jhanjies	27	27 0 0	35	35 0 0			
Sissu logs	211	3,307 0 0	245	3,800 0 0			
Khair "	9	60 8 0	9	60 8 0			
Miscellaneous logs	2	17 8 0	2	17 8 0			
" posts	.....	.....	99	99 0 0			
" b. g. sleepers ...	146	291 0 0	877	1,754 0 0			
" pieces	13	8 7 1	.....	.....			
Elephants	4	10,500 0 0	6	15,500 0 0			
Total ...	.....	78,429 15 6	.....	1,34,531 14 5	56,101 14 11	.....	
Palamow Division.							
Elephants	1	1,500 0 0	1	1,500 0 0			
Total ...	.....	1,500 0 0	.....	1,500 0 0			
Hazaribagh Division.							
Elephants	.....	.....	1	1,200 0 0			
Total ...	.....	.....	.....	1,200 0 0	1,200 0 0	.....	
Sunderbans Division.							
Boats	35	7,058 14 11	35	4,720 3 1			
Teak pieces	.....	.....	8	33 0 0			
Sál "	.....	.....	18	5 0 0			
Total ...	.....	7,058 14 11	.....	4,758 3 1	.....	2,300 11 10	
Grand Total ...	.....	.....	.....	.....	61,930 10 10		

C. E G.—Reg. No. 4155J.—360—13-8 80.

REVENUE DEPARTMENT.

FORESTS.

DARJEELING, THE 28TH AUGUST 1880.

RESOLUTION.

READ—

The Progress Report of Forest Administration for 1879-80.

The report is submitted by Mr. J. S. Gamble, who has officiated as Conservator throughout the year.

2. The expectation expressed in last year's report that 1,816 square miles would probably be added to the reserved forest area during 1879-80 has not been fulfilled, it having been found impossible to complete the arrangements for notifying the further reserves to be taken up in Singbhoom, Chittagong, and other divisions. The report on the Saranda forests in Singbhoom has, however, been submitted by Mr. H. Davis, the Assistant Conservator, who was specially deputed to examine them, and as soon as the Conservator has made his inspection, demarcation will be commenced. These forests are chiefly sâl, and though much injured by fires and indiscriminate tapping for resin, they appear likely, under good management, to form a valuable addition to the timber tracts of Bengal. The Conservator has, he reports, inspected most of the forests in the Julpigoree and Buxa divisions which remain to be taken up; and the proceedings necessary before final notifications can issue are in progress in respect of the other tracts referred to above. The exact state of affairs in each division will be noticed below. The Rhotas, Rehul, and Bans-i-koh forests in Shahabad have been finally excluded from the reserved area. The following table shows the present reserved area and the expected accessions to it as now given:—

Division.	Area in square miles					
	At the beginning of 1879-80.	Added during the year.	Excluded during the year.	Total.	Expected increase.	Total.
Darjeeling	37	1	4½	33½	5	38½
Teesta	66	.....	.....	66	190	256
Kurseong	99	.....	.....	99	13	112
Julpigoree	148	18½	.....	166½	5	171½
Buxa	250	.....	.....	250	4	254
Palamow	216	.....	37	179	.....	179
Hazaribagh	.....	.....	.....	.....	31	31
Singbhoom	.....	.....	.....	.....	400	400
Sunderbuns	1,581	.....	.....	1,581	.....	1,581
Chittagong	570	.....	.....	570	1,150	1,720
Total ...	2,967	19½	41½	2,945	1,798	4,743

3. It was shown in last year's report that most of the area finally reserved had been demarcated, and fair progress made in the demarcation of tracts as to which preliminary notifications had issued. The only work in fact now remaining to be done is in tracts regarding the boundaries of which some question has still to be decided, or the limits of which are liable to modification by the proceedings of forest settlement officers. The boundary records are apparently making satisfactory progress.

4. The monthly maximum allowance for subordinate forest and office establishment was fixed at Rs. 5,000 for 1879-80, but has for 1880-81 been raised to Rs. 5,581, to provide for the increased area taken up in Chittagong. The superior staff consisted, on the 1st April 1880, of 13 officers. Since that date the orders of the Government of India have been received,

fixing the strength of the superior forest staff for Bengal and Assam together thus—

Conservators	2
Deputy Conservators	5
Assistant ditto	8
Sub-Assistant ditto	4
Total ...	19

Of these, six are now employed in Assam. The staff allowed for Bengal, with its increasing forest area, will, the Lieutenant-Governor fears, even when all the officers are present, prove very inadequate; and the grant of leave will, unless special assistance is given from the staff of other provinces, be almost impossible.

5. There has been a further decrease in the number of prosecutions for breach of forest rules, there being only 67 cases involving 158 persons against 74 cases with 247 defendants in 1878-79. In 56 cases convictions were obtained as against 38 only in the previous year—a greatly improved result. In nine of the cases the charge was that of injuring the forests by fire; in 31, of unauthorized felling or appropriation of forest produce; and in nine, of grazing without permission in prohibited tracts.

6. An area of 139½ acres was added to the plantations during the year, bringing the total area up to 953½ acres. The Conservator remarks that the system of planting in lines has now been definitely adopted as the best and most economical. The following extract from Mr. Gamble's remarks under this head may be of interest to the owners of landed property in the hills:—

"Planting in the Darjeeling Hills is by no means difficult below an altitude of 7,000 feet: where the difficulty exists is in the time required for raising plants in the nurseries, until they are large enough to be put out without fear of their being choked by the ground vegetation which is usually so profuse. Besides, seed is not procurable every year, the oaks scarcely give one crop every three years, and some of the best species, like *Quercus pachyphylla*, are most difficult to procure sound. The magnolia seed usually takes a long time to germinate. Perhaps the easiest hard-wooded tree to grow in the hills is the pipli (*Bucklandia populifolia*), which of late years has been very successfully grown; maple and toon are always easy; while of exotic trees the ash (*Fraxinus floribunda*) and cypress (*Cupressus torulosa*), seeds of which have been procured regularly from the North-West Provinces, have proved themselves to be perfectly hardy, and to be as easy to raise as most trees indigenous to Sikkim."

7. An account is given as usual of the experiments which are being made at the Botanical Gardens, Howrah, and under the supervision of the Forest Department, in growing various trees and plants of economic value. The experience of the year confirms the conclusions arrived at by Dr. King as to the hopelessness of attempting to grow the Carob (*Ceratonia siliqua*), and the Para rubber (*Hevea Braziliensis*) in the climate of Lower Bengal. The *Baobab* plantation in the Botanic Gardens continues to grow slowly. But all the eight species of Eucalyptus are now reported to have failed: and Dr. King considers it mere waste of time to try to grow any of these trees in the Gangetic delta. On the other hand, the *Ceara* rubber tree (*Manihot Glaziovii*), when freely exposed to sun and rain, has turned out to be a hardy plant, easily grown, and readily propagated. If its rubber proves good, Dr. King anticipates that tea-planters, with gardens on the plains, and indigo-planters, will soon take it up and find it profitable. He is preparing to meet a large demand for young plants and seeds. The *Prosopis pubescens*, a plant whose pods yield a tanning material, is growing well, but has not yet flowered. The tree which yields the Divi-Divi tan *Cæsalpinia coriaria* is found to yield pods freely in the garden, and seeds are now given *gratis* to all applicants. The Guango or rain tree (*Pithecolobium saman*) is said to grow faster than any hitherto introduced in Bengal. It gives a fine shade and yields a pod much relished by cattle. Dr. King gets supplies of seed for distribution from Jamaica. The Forest Department is going to plant it in the Terai and elsewhere, and it is evidently a tree deserving the attention of all land-owners and planters. The wattle trees (*Acacia Melanoxylon*, *Decurrens*, and *Dealbata*) tried by the department in the Darjeeling division have grown well below 7,000 feet, but bear transplanting badly.

8. The year was a favourable one generally in the matter of jungle fires. Of 447,836 acres attempted to be protected, success was secured over 423,105

at a total cost of Rs. 18,284 (up to 30th June 1880). The only serious fires were in Palamow, and even there a large area was saved by the protective measures lately introduced, while the persons who caused the fires were punished. The great fires of 1879 in Sikhim and Darjeeling are said to have resulted in immense destruction of canes and bamboos, rendering those articles extremely scarce in the hills, besides damaging seriously the forests of rhododendron and oak. The closing of the Kurseong forests to hunting, shooting, and fishing during the dangerous season (February to June) has reduced the risks from fire, and the measure will be extended next year to Julpigoree.

9. The number of trees felled during the year was 3,295 as against 6,481 in the previous year; but 100,017 cubic feet of timber were brought to depôt against 78,082. Besides this, in Darjeeling and Julpigoree, 152,101 maunds of firewood and charcoal were supplied. The average cost to the department of the timber brought to depôt during the last six years has been Rs. 86 per 100 cubic feet, and the average rate of sales Rs. 143 per 100 cubic feet. The gross sales from depôts during 1879-80 amounted to Rs. 1,36,464 against Rs. 1,66,649 in the previous year. The slackness in the demand for timber for public works accounts for the difference.

10. The following table exhibits the financial working of the department for the past nine years :—

Years.	Receipts.	Charges.	Surplus.	Area of reserved forests.
	Rs.	Rs.	Rs.	S. miles.
1871-72	87,260	67,506	19,754	106
1872-73	1,16,690	62,554	54,136	106
1873-74	1,23,732	81,068	42,664	120
1874-75	1,85,914	98,654	87,260	1,407
1875-76	1,98,274	1,39,086	59,188	2,585
1876-77	2,22,401	2,11,689	10,712	3,390
1877-78	4,32,363	2,61,112	1,71,251	3,434
1878-79	4,16,027	3,38,675	77,352	2,967
1879-80	4,49,524	2,75,748	1,73,776	2,945
Total ...	22,32,185	15,36,092	6,96,093	.....
Average of nine years ...	2,48,020	1,70,677	77,343	.....

The surplus of 1878-79 was reduced by the exceptional payment of Rs. 63,492 for lands in Kurseong during that year. The favourable results of the past year were mainly due to the successful working of the forests in the Sunderbuns, and to a good season in the Chittagong Hills; the former contributing a surplus of Rs. 1,49,604, and the latter of Rs. 50,831. The Chittagong open forests, from which this surplus accrued, were, however, it should be noted, in charge of the Deputy Commissioner of the district, and not of the Forest Department. Taking deficit and surplus divisions together, the reserved forests gave a net surplus of Rs. 1,20,170; protected forests of Rs. 2,775; and unreserved forests (Chittagong) of Rs. 50,831. The value of the stock in hand at the close of the year was Rs. 61,931 more than that in store at the close of 1878-79.

11. The following are the chief points which call for notice in the detailed reports of the different forest divisions.

12. *Darjeeling.*—The present area of the division is 21,351 acres, divided into three ranges and fourteen protective beats, which in this instance are co-extensive with the working blocks. The Rangbul Range (five blocks) embraces 5,687 acres, and is not likely to be increased. Its boundaries are all but completely demarcated. The Tukdah Range (five blocks) was shown last year at 10,467 acres, but 2,951 acres were found to belong properly to the Teesta forests and were excluded, bringing the Tukdah area to 7,516 acres. About 2,750 acres will, however, be transferred to this range from the Cinchona reserve, raising its eventual area to 10,266 acres. The Goompahar Range (four blocks) has been increased to 8,148 acres by adjustments of

boundary, and will receive a further addition of 435 acres when the Pugraingbong reserve is notified. The Lieutenant-Governor has also directed that an area of about 1,000 acres held at present by the Municipality of Darjeeling should be made over to the Forest Department for management with the Goompahar Range. The opening of a cart road through this range has been effected at the cost of provincial funds, and if a branch line can be made, connecting it with the steam tramway now approaching Darjeeling, the value of this forest should be greatly enhanced. Reproductive measures have been steadily pushed on; and though many difficulties have been felt, much useful experience has been gained, and good results obtained in both Rungbul and Tukdah. As regards the fuel operations in the neighbourhood of the station, it is satisfactory to learn that, owing to greater economy in the utilization of branches, stumps, and roots, the number of trees felled has been less in proportion than in former years. The suggestions made by Dr. Brandis, Inspector-General of Forests, on his visiting Darjeeling last year have led to improved and more systematic working in this as well as in other divisions. The receipts of the division gave a surplus revenue of annas 14-1 per acre, or Rs. 560 per square mile—a considerable advance upon the returns of the previous year. The gross receipts were Rs. 68,562 against Rs. 66,472 in 1878-79. The charges were Rs. 49,782 against Rs. 52,866.

13. *Teesta.*—The area of this division is 42,015 acres, divided into five ranges and 19 beats or protective charges. The arrangements for finally notifying the eight blocks described in the notification of the 28th July 1878 are still incomplete; but it is hoped that before the close of 1880-81 the greater part may be finally reserved. Most of the new blocks have been demarcated; and their southern boundary will probably be adopted along its lengths as the district boundary of Darjeeling and Julpigoree. This is a difficult tract to protect from fire, and the year under review was no real test of the effectiveness of the arrangements made; but all possible precautions are being taken by fixing camping grounds for travellers, clearing broad boundary lines, closing jungle-paths, and employing watchers to guard against destructive conflagrations. No fellings took place during the year; but Rs. 5,045 (against Rs. 3,086 in 1878-79) were realised from sale of timber in depôt and minor produce against an expenditure of Rs. 16,988. An attempt made after six years' rest to resume the tapping of the rubber trees in this division seems to have been a failure, owing to the fact that the trees had not even yet recovered the heavy tapping of former years.

14. *Kurseong.*—The actual area of this division (62,885 acres) has not increased during the year; but the proceedings for adding to the reserves the areas purchased in the Terai from Mr. Lloyd and others, and the Babookhola and Mamring Hill forests are nearly completed and will extend the area by 8,184 acres. The division has four ranges and 19 protective beats. Complete demarcation has been delayed by the operations of the survey now going on, and negotiations rendered necessary by the encroachments of tea gardens. Much useful work has been done in opening up paths through the formerly trackless forests between the Mahanadi and Teesta rivers. Reproduction of toon, sâl, sissu, saj, and lampatia has progressed at Bamunpokri. The India-rubber plantation has also been extended; and experiments in the growth of bamboo under irrigation have been undertaken at Sukna. Protective measures against fire have been extended to nearly the whole division, and the Conservator acknowledges the assistance given to the department by tea-planters in arranging for mutual fire-protection belts. On the other hand, the only serious occurrence of the year was caused by the manager of a Terai garden deliberately setting fire to the forest reserve. This case was prosecuted to conviction. There was an increase in the work done by the department as regards taking out of timber, although most of the requirements of the Tramway Company were met from private sources. The receipts for the year were Rs. 40,047 against Rs. 35,244 in 1878-79. The charges were Rs. 30,354, of which Rs. 15,289 were spent on the formation, improvement, and protection of forests.

15. *Julpigoree.*—The area of this division was 106,530 acres at the close of the year. Proposals for adding the Malhati, Kyranti, and Goshai Hât forests—about 3,000 acres—are under consideration. The division has

four ranges and 14 protective beats. The work of demarcation is complete. A good beginning has been made in the way of roads, which are much needed everywhere. Fire protection was attempted in all the blocks, and though some damage was done by fire in two of them, the arrangements were fairly successful. The receipts of the year were Rs. 10,417 against Rs. 8,286 in 1878-79. The charges were Rs. 11,593. Next year a surplus is expected.

16. *Buxa.*—No change took place in the area of this division during the year (160,000 acres). The Salkuer and Butri forests have been recommended for reservation, which will add 2,500 acres. The division has three ranges and 11 protective beats. The northern boundary, marching with Bhutan, is being laid down by a special officer. A large nursery has been stocked with seedlings of various trees, which will be planted out in bands and serve to protect the forests from fire. Besides this, about 9 acres were planted up with sâl seedlings. Special measures of fire protection suggested by the Inspector-General were carried out, and will, it is hoped, prove useful even in less favourable years than the last. The absence of fire is said to cause the sun, grass to die out, which is of itself an important gain for the young sâl seedlings. The sales of timber were much below expectations, owing to a falling off in the demand for sleepers. But the receipts were still Rs. 64,351 (against Rs. 95,714 in 1878-79). The charges were Rs. 56,088, of which Rs. 14,678 were spent on fire protection.

17. *Palamow.*—The area of reserves in Lohardugga amounts to 114,560 acres. The Shahabad forests, formerly grouped under this division, were, as already noticed, excluded during the year, the title of Government to the lands having been shown to be doubtful. There are in Palamow four ranges and 20 protective beats. The villages have now been all removed from the reserves and the boundaries are demarcated. A beginning was made in the way of fire protection, and lines 40 feet broad cut round the forests. Since the 31st March, however, three fires have occurred, burning 20,480 acres. The offenders have been prosecuted and punished. The receipts of the year were Rs. 1,097 against Rs. 757 in the previous year. The expenditure was Rs. 11,978.

18. *Hazaribagh.*—The Koderma forest in this district has only been notified since the close of the year. The officer in charge has been engaged in demarcating and reporting on the Saranda forests in Singbhoom, referred to in the opening paragraph of this Resolution.

19. *Sunderbuns.*—The area of the reserves was unaltered during the year, amounting to 1,011, 840 acres, of which 244,480 are in the 24-Pergunnahs and the rest in Jessore. The area is divided into three ranges, and has eleven toll stations. No reproductive or fire protective measures were required here. The experimental plantations of *Baobab* at Khulna and Ghooskhali are said to have failed. The receipts of the division were Rs. 1,87,324 against Rs. 1,72,546 in 1878-79. The charges were Rs. 37,720 against Rs. 53,075. The net revenue was Rs. 94-10 per square mile as against Rs. 75-8 in the previous year.

20. *Chittagong.*—The area reserved in this division remains the same as last year—364,800 acres. The proposed extensions notified on the 10th May 1878 have not been taken up pending the conclusion of proceedings before the Forest Settlement Officer. Reproduction has been extended at Sitapahar. Mahogany plants received from Dr. King have been put out and are doing well. Experiments with the Ceara rubber and *Pithecolobium saman* are being made. Fire protection is only found necessary round the planted area at Sitapahar. The receipts of the year were only Rs. 2,204, and the expenditure Rs. 19,411 ; but there is no doubt that eventually these reserves, which are full of fine timber, will bring in a large revenue.

21. *Unreserved Forests.*—These consist of a small tract in Julpigoree, which will eventually be brought into the reserves ; and of 5,100 square miles of open forest in Chittagong, which were during the year under the management of the Deputy Commissioner, but are, from the 1st April 1880, to be taken charge of by the Assistant Conservator, subject to the control of the Deputy Commissioner. The revenue from these Chittagong forests last year was Rs. 58,246, and the expenditure Rs. 7,415.

22. *Protected Forests.*—The only forests of this class are in the Sunderbuns, where they cover an area of 1,199,940 acres in the 24-Pergunnahs and

32,000 acres in Jessore. The receipts of the year were Rs. 12,124 and the charges Rs. 6,744. The receipts represent only eight months' collections, as operations were only commenced after the year began. The revenue from this tract ought to improve rapidly.

23. The Lieutenant-Governor is glad to learn that the health of the superior establishments has been better than last year; but there can be no doubt that most of the forest work in Bengal entails constant exposure to malarious influences, which must render a fair amount of leave absolutely necessary for all. This makes the Lieutenant-Governor regret the more the insufficient allotment of superior staff recently made by the Government of India to this province, and the weakening of the department by the transfer elsewhere of officers of local experience.

24. The Lieutenant-Governor has had every reason to feel satisfied with the management of the department by Mr. J. S. Gamble, the Officiating Conservator, during the year under review.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

Secretary to the Government of Bengal.

No. 2665—274F.

COPY, with 30 copies of the Report, forwarded to the Conservator of Forests for information.

No. 2666—275F.

COPY, with copy of the Report, forwarded to the Superintendent of Forest Surveys for information.

Nos. 2667-78—276-87F.

COPY, with copy of the Report, forwarded to the District Officers of Darjeeling, Julpigoree, Lohardugga, Singbhoom, Manbhoom, Hazaribagh, Chittagong, Sonthal Pergunnahs, 24-Pergunnahs, Backergunge, Jessore, and Shahabad for information.

Circular No 6.

COPY, with copy of the Report, forwarded to all Commissioners of Divisions for information.

By order of the Lieutenant-Governor of Bengal,

C. W. BOLTON,

Under-Secretary to the Government of Bengal.

CALCUTTA,
The 28th August 1880.

C. E. G.—Reg. No. 5211C—306—28-8-80.